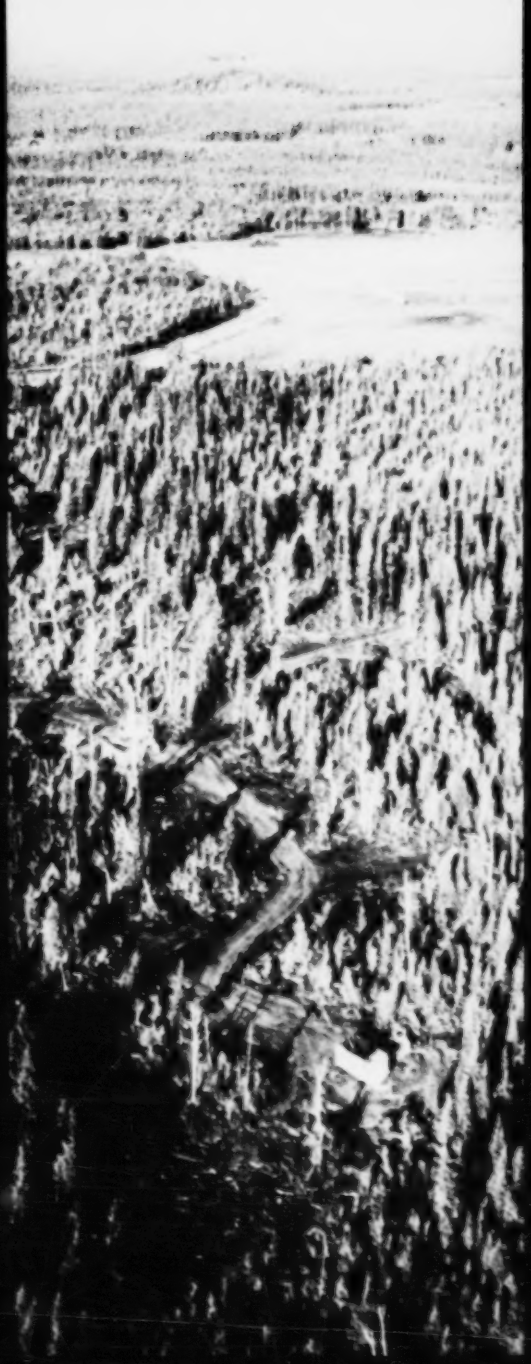
DV 2001-02



Report on mineral exploration activities in Québec

2000

Québec

103-03499/

Erratum

Please disregard page 46 of the report. The correct text for the St. Lawrence Platform and Appalachians section follows.

Investments in mining exploration amounted to $2.6 M for the year 2000. This includes $700,000 in financial assistance from the Ministère des Ressources naturelles, under the Québec mineral exploration assistance program, and an additional $593,000 from the assistance program for junior exploration companies. A total of 97 projects were compiled, and the total number of metres drilled was 3,197. For the complete list of 97 projects, the reader is referred to Table 1F-1.

Southwest Region (Montréal - Chaudière-Appalaches)

Niocan (17) continued the appraisal of its niobium mining property situated in the Oka carbonatite complex, near Montréal. Niocan's objective is to operate an underground mine and build an onsite processing plant to convert pyrochlore concentrate into ferroniobium. Two mineralized zones, S-60 and HWM-2, are considered to be economically viable. Combined ore reserves for the two zones (with a cut-off grade of 0.50 % Nb_2O_5) are estimated at 13.3 Mt at a grade of 0.63 % Nb_2O_5.

Near Thetford Mines, **Allican Resources** (7) (8) continued work on its project to operate a smelter with an annual capacity of about 20 000 metric tonnes of low-carbon ferrochrome. The smelter would be supplied in part by imported concentrates, and also by the subsequent mining of the Hall (open pit mine) and Reed-Bélanger (underground mine) chromiferous ore deposits, hosted in the Thetford Mines ophiolitic complex. To date, a mineral resource of 1,018,000 t at 4.6 % Cr_2O_3 and an average grade of 0.22 g/t Pt has been identified for the Hall deposit, and 5.6 Mt at 6.78 % Cr_2O_3 for the Reed-Bélanger deposit.

Central Region (Bas-Saint-Laurent)

In the Madawaska-01 seigniory, **SOQUEM INC.** and **Ressources Appalaches** (55) pursued their joint venture assessment of a series of copper showings on the Marquis Block of the Squatec project.

Ressources Appalaches (42) performed additional work on the copper-silver Transfiguration property in Bédard Township. Their objective over the last few years, for this project and the Squatec project, has been to discover a stratiform "red bed" copper deposit within the Robitaille Formation.

Northeast Region (Gaspésie - Îles-de-la-Madeleine)

SOQUEM INC., in partnership with **Noranda** (85), continued exploration drilling on the Vallières property in Lesseps Township, in the search for copper-rich skarns and massive sulphides (mantos) in carbonate rocks of the Chaleurs Group and the Upper Gaspé Limestones.

In a similar metallogenic setting, **SOQUEM INC.** (86), pursuant to an agreement, performed work including one drillhole on the property held by Major Drilling in Lesseps Township.

The Lac Arsenault property, held by **Scorpio Mining Corp.** (95) in Weir and Honorat townships, is characterized by the presence of at least 5 polymetallic (Au-Ag-Pb-Zn) vein-type showings. Preliminary results of an exploration program revealed that channel sampling of the Baker vein (FG 22A/06-1) over a length of 41.5 m and a width of 0.74 m yielded an average grade of 14.4 g/t Au, 470.74 g/t Ag, 14.27 % Pb and 0.36 % Zn. A recently discovered mineralized breccia zone, adjacent to the hanging wall of the Baker vein, yielded an average grade of 3.09 g/t Au, 20.91 g/t Ag, 1.28 % Pb, and 0.27 % Zn over a total length of 9.14 m and an average width of 2.44 m. Channel sampling of a second vein (the Marleau vein) located 15 m west of the Baker vein yielded average grades of 4.11 g/t Au and 4.11 g/t Ag over a total length of 131 m and a width of 0.46 m, with anomalous Pb and Zn values. A mineralized breccia zone was recently discovered adjacent to the hanging wall of the Marleau vein, similar to the Baker vein setting. Samples from this mineralized breccia yielded 1.37 g/t Au and 1.71 g/t Ag over an average width of 7.67 m and a total length of 13.11 m.

Outlook

The level of mining exploration activity in 2001 should be comparable to 2000. Projects in the development phase such as those headed by Niocan and Allican Resources will proceed. The Québec mineral exploration assistance program will help to maintain a basic level of exploration.

Report on mineral exploration activities in Québec

Published by « Géologie Québec »
Alain Simard, director

Technical supervision
André Beaulé

Page make-up
Charlotte Grenier

Coverpage :
1- Photo from the Perseverance project discovery by Noranda near the Matagami airport. NTS 32F/13, Daniel Township. Photo courtesy of Noranda Inc., Matagami division.

2- Photo from the Midrim project discovery by Aurora Platinum Corp. in the Timiscaming area. NTS 31M/06, Baby Township. Photo courtesy of Aurora Platinum Corp.

Dépôt légal – Bibliothèque nationale du Québec, 2000
ISBN : 2-551-20485-2
© Gouvernement du Québec

Highlights

The 2000 annual report provides an overview of mining exploration activity in each geological province, and highlights the mineral potential of Québec's regions. Given the number of important discoveries that occurred during the year, combined with the very favourable perception of mining exploration companies regarding Québec's mineral potential, the number of exploration projects and the amounts invested in Québec remained stable relative to last year, and even grew in certain regions, such as the Abitibi, where exploration for massive sulfide deposits increased.

The Abitibi Subprovince remains a very attractive target for base and precious metals. Near the Matagami airport, exploration by **Noranda** on the Perseverance project identified three near-surface massive sulphide lenses and delineated a mineral resource of 5 Mt grading 16.8 % Zn, 1.3 % Cu, 34 g/t Ag and 0.4 g/t Au. A feasibility study is currently underway to evaluate the deposit. Work by **Cancor Mines** on the Gemini property west of Joutel helped delineate a resource of 2.013 Mt at 8.26 % Zn and 3.01 % Cu. A new zinc-rich zone was also discovered in the vicinity of the copper-rich B zone. Drillhole 93 intersected 31.75 metres grading 0.33 % Cu, 0.34 % Zn, 20.8 g/t Ag and 1.08 g/t Au. **International Taurus** obtained promising results on the Fénélon project, located 30 km northeast of the Selbaie mine. Drillhole FA-00-185 yielded 117.6 g/t Au over 6.7 m. North of Val d'Or, **Major General Resources** and **Cameco Gold** continued their work on the Despinassy property. Drillholes testing the potential of an auriferous shear zone intersected 15.8 g/t Au over 1.2 m and 1.1 g/t Au over 66.6 m. On the Croinor property, located east of Val d'Or, **South Malartic** reported several encouraging intersections. Their best results include 6.18 g/t Au over 31.5 m and 7.2 g/t Au over 5.2 m in drillhole CR-00-11, and 6.42 g/t Au over 27.5 m in drillhole CR-00-09. In December, **Aurora Platinum** announced high-grade Ni-Cu-Pt-Pd results from drillholes on its Midrim property, located 20 km northeast of Ville-Marie, in the Témiscamingue region. The first five drillholes of a 16-hole campaign yielded the following results: 2.99 % Cu, 1.85 % Ni, 0.97 g/t Pt, 1.77 g/t Pd and 0.48 g/t Au over 19.7 m in drillhole MR00-01, and 2.88 % Cu, 3.52 % Ni, 0.59 g/t Pt, 3.36 g/t Pd and 0.23 g/t Au over 10.35 m in drill hole MR00-05. An extensive drill program is scheduled for 2001 on the Midrim property. Also in December, **Murgor Resources** confirmed the presence of Ni-Cu-PGE mineralization on the La Trêve I property, located 45 km northwest of Chapais. A channel sample from the sulphide-rich zone yielded an average grade of 2.79 g/t total PGE over 10 m, including 4.92 total PGE over 3.7 m. Grades of 0.10 to 1.1 % Cu and 0.15 to 0.58 % Ni were also reported. A grab sample from the La Trêve II property, located 8 km north of La Trêve I, assayed 1.19 g/t total PGE, 0.57 % Cu, 0.25 % Ni, and 0.13 % Co. These recent discoveries clearly illustrate the mineral potential of the Abitibi and Pontiac subprovinces, and the high discovery rate, even within so-called traditional mining camps.

In the James Bay region, **Dianor Resources** announced the results of ongoing work on the PEM 1404 property. The best values from channel samples testing the extensions of the Pierre zone were 21.48 g/t Au over 1.69 m and 15.66 g/t Au over 0.89 m. Channel samples on the Giaro showing yielded 1.3 g/t Au over 7 m, including 2.8 g/t Au over 2.26 m, and 1.7 g/t Au over 4.4 m, including 3.24 g/t Au over 1.47 m. Work by **Matamec Exploration** on the Sakami project confirmed the presence of a gold showing hosted in iron formation. Channel samples yielded values of 2.1 g/t Au over 20.82 m, 2.09 g/t Au over 9.97 m, and 1.87 g/t Au over 9.7 m. **SOQUEM INC.** and **Sirios Resources** discovered several auriferous veins on the Aquilon property, located south of the Laforge-1 hydroelectric complex. Spectacular grades reaching 287.43 g/t Au over 2.3 m in channel samples, and up to 1,477.1 g/t Au in grab samples were reported. **Sirios Resources** announced results from several Cu-Mo-Au-Ag hydrothermal breccias on the Tilly property, located 30 kilometres west of the LG-4 hydroelectric complex. The best drill results include 0.14 % Mo and 0.02 % Cu over 22.8 m, and 0.28 % Mo and 0.02 % Cu over 7.4 m, whereas grab samples graded up to 0.53 % Cu, 2.4 % Mo, 2.2 g/t Au and 27 g/t Ag. In the Eastmain River area, **SOQUEM inc.** and **Eastmain Resources** continued their intensive program in the vicinity of the Eau Claire deposit. Six new parallel auriferous veins (veins 11 to 16) were uncovered in surface strippings to the west of known veins. Vein 16 yielded a grade of 21.3 g/t Au over a strike length of 67 m and an average width of 1 m. Furthermore, over 60 drill intersections with grades between 5 and 200 g/t Au confirmed the depth extension of auriferous structures. In December, **Majescor Resources** identified numerous angular kimberlite fragments and a substantial number of indicator minerals following a sampling program on the Wemindji property. Several companies subsequently acquired properties in this area, which has become a new target for diamond exploration. **Majescor Resources** and **Ashton Mining of Canada-SOQUEM INC.** discovered numerous kimberlite indicator minerals in the Eastmain area, about 40 km northwest of the former Eastmain gold mine, near Lac Mistassini. Given the discovery of gold occurrences, porphyry-type mineralization, and massive sulphides, along with the promising diamond potential of the James Bay region, the area should remain quite active during 2001.

In Québec's Far North region, **Twin Mining** announced results of work in the Torngat Mountains area throughout the year. In March, several 10-tonne bulk samples were collected from the Torngat 1, Torngat 2-3 and the Kakivuq dykes. Sample AD2 yielded 77 diamonds over 0.85 mm in size, the largest measuring 3.8 x 3.6 x 3.2 mm, for a preliminary grade estimate of 15.3 carats/100 tonnes. Sample DU produced 99 diamonds, the largest of which measured 3.1 x 2.04 x 1.08 mm, for a preliminary grade of 15.7 carats/100 tonnes. Three additional samples weighing in at about 100 tonnes each were collected from site AD2.

During the year, the cumulative length of dykes on the Torngat property was increased to 50 km, and 2 new dykes were identified. **Tandem Resources** and **Diamond Discoveries** also announced the discovery of diamonds and rubies on their Abloviak Fjord property. Ten diamonds, including 4 macro-diamonds were recovered from two samples totalling 54.8 kg, collected in a 2-m-thick kimberlite dyke extending over 5.6 km in length. In October, 36 mining exploration licences were recorded in this area. In the Labrador Trough, **Osisko Exploration** and **Coleraine Mining Resources** announced encouraging results on their Gillet property. The best channel samples yielded PGE (Pt+Pd) grades of 0.58 g/t over 10 m, including 4.65 g/t over 2 m, and 1.17 g/t over 10 m, including 5.37 g/t over 2 m. Finally, geological mapping at a scale of 1:250,000 in Québec's Far North region by Géologie Québec resulted in the discovery of a Ni-Cu-Co showing, 200 km southwest of Inukjuak. Seven grab samples of disseminated to semi-massive sulphides from the Lac Qullinaaraaluk showing assayed up to 1.71 % Ni, 1.8 % Cu, and 0.27 % Co. Several new exploration targets were also outlined by the staff of Géologie Québec in this poorly explored territory.

In the Appalachians, exploration by **Scorpio Mining** confirmed the gold potential of the Lac Arsenault property, located 16 km north of Paspébiac, in the Gaspésie region. Channel sampling of the Baker Vein, 41.5 m long by 0.74 m wide, yielded an average grade of 14.4 g/t Au, 470.74 g/t Ag, 14.27 % Pb and 0.36 % Zn.

In the industrial minerals sector, **Noranda**'s Magnola plant, located in Asbestos in the Eastern Townships, began production of magnesium metal. **Raymor Industries** successfully completed semi-industrial tests of lithium metal production from spodumene ore originating from the La Motte deposit, located near Amos in the Abitibi region. Overall, the level of interest for industrial mineral prospecting remained stable in 2000, mainly due to the efforts of regional mining exploration funds. More than ten different commodities were the focus of prospecting and sampling, and in some cases of drill programs.

M. Alain Simard, director
Direction de la géologie
5700, 4 Avenue Ouest, suite A-208
Charlesbourg (QC) G1H 6R1
Phone: (418) 627-6274
Fax: (418) 643-2816
E-mail: alain.simard@mrn.gouv.qc.ca

M. Pierre Verpaelst, head of service
Service géologique de Québec
5700, 4 Avenue Ouest, suite A-210
Charlesbourg (QC) G1H 6R1
Phone: (418) 627-6276, extension 5059
Fax: (418) 643-2816
E-mail: pierre.verpaelst@mrn.gouv.qc.ca

M. Robert Marquis, head of service
Service géologique du Nord-Ouest
400, boul. Lamaque, suite 1.2
Val-d'Or (QC) J9P 3L4
Phone: (819) 354-4514, extension 232
Fax: (819) 354-4558

M. Alain Simard, acting head of service
Service à la clientèle de l'exploration
et du marketing
5700, 4 Avenue Ouest, suite A-208
Charlesbourg (QC) G1H 6R1
Phone: (418) 627-6274
Fax: (418) 643-2816

M. Patrick Rissmann, head of service
Service de la géoinformation
5700, 4 Avenue Ouest, suite A-214
Charlesbourg (QC) G1H 6R1
Phone: (418) 627-6269, extension 5265
Fax: (418) 643-2816
E-mail: patrick.rissmann@mrn.gouv.qc.ca

M. Pierre Marcoux, acting head of service
Service des minéraux industriels et
de l'assistance à l'exploration
5700, 4 Avenue Ouest, suite A-206
Charlesbourg (QC) G1H 6R1
Phone: (418) 627-6287, extension 5263
Fax: (418) 643-2816

CHIBOUGAMAU
375, 3 Rue, suite 2
Chibougamau (QC) G8P 1N4
E-mail: patrick.houle@mrn.gouv.qc.ca

M. Patrick Houle
Phone: (418) 748-2663
Fax: (418) 748-6061

MONTRÉAL - EASTERN TOWNSHIPS - LAURENTIANS
Complexe FTQ
545, boul. Crémazie Est, suite 1110
Montréal (QC) H2M 2V1
E-mail: roch.gaudreau@mrn.gouv.qc.ca

M. Roch Gaudreau
Phone: (514) 873-8814
Fax: (514) 873-8983

ROUYN-NORANDA
82, boul. Québec
Rouyn-Noranda (QC) J9X 6R1
E-mail: pierre.doucet@mrn.gouv.qc.ca

M. Pierre Doucet
Phone: (819) 763-3748
Fax: (819) 763-3798

LOWER ST LAWRENCE - GASPÉ - MAGDALEN ISLANDS
124, 1 Avenue Ouest
Sainte-Anne-des-Monts (QC) G0E 2G0
E-mail: bur.mines.ste-anne@mrn.gouv.qc.ca

M. Serge Lachance
Phone: (418) 763-3622
Fax: (418) 763-2958

VAL-D'OR
400, boul. Lamaque, suite 1.02
Val-d'Or (QC) J9P 3L4
E-mail: lucie.ste-croix@mrn.gouv.qc.ca

Mme Lucie Ste-Croix
Phone: (819) 354-4735, extension 242
Fax: (819) 354-4558

NORTH SHORE - NEW QUÉBEC
456, rue Arnaud, suite 1.04
Sept-Îles (QC) G4R 3B1
E-mail: serge.perreault@mrn.gouv.qc.ca

M. Serge Perreault
Phone: (418) 964-8300
Fax: (418) 964-8506

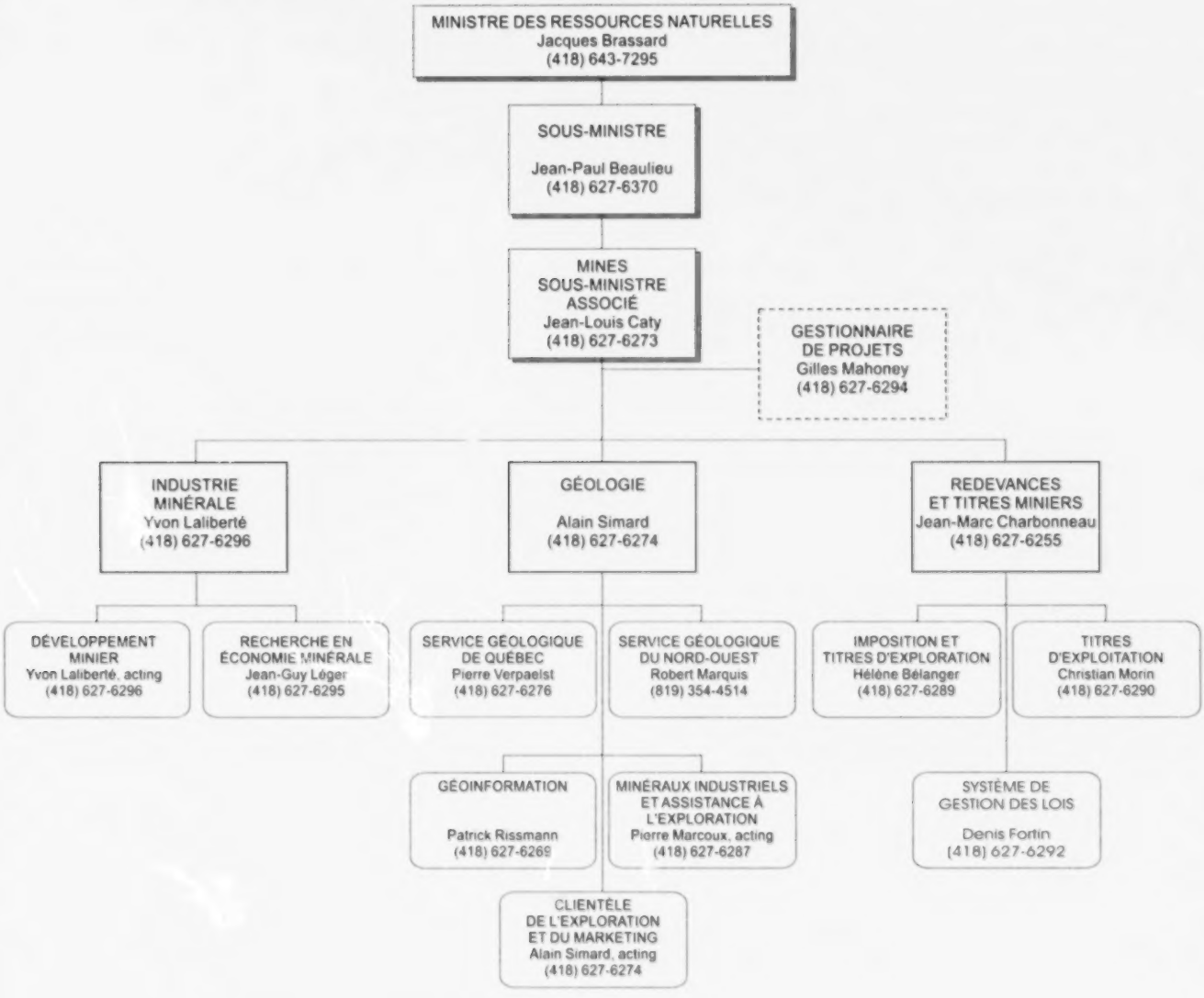
Service outlet Mines-Sherbrooke
Édifice Yvette-Boucher-Rousseau
200, rue Belvédère Nord, suite 1.05
Sherbrooke (QC) J1H 4A9
E-mail: roch.gaudreau@mrn.gouv.qc.ca

Phone: (819) 820-3190
Fax: (819) 820-3946

Service outlet Mines-Hull
170, rue de l'Hôtel-de-Ville
suite 7.340
Hull (QC) J8X 4C2
E-mail: roch.gaudreau@mrn.gouv.qc.ca

Phone: (819) 772-3487
Fax: (819) 772-3958

MINISTÈRE DES RESSOURCES NATURELLES - SECTEUR DES MINES



January 8, 2001

SUMMARY

Page

CHAPTER 1 : Base and precious metals 1

1A – **THE NORTHERN PART OF THE SUPERIOR PROVINCE (MINTO, BIENVILLE AND ASHUANIPI SUBPROVINCES)**, by Roch Gaudreau 1

1B – **THE JAMES BAY REGION : THE CENTRAL PART OF THE SUPERIOR PROVINCE (OPATICA, OPINACA, NEMISCAU AND LA GRANDE SUBPROVINCES)**, by Patrick Houle 7

1C – **THE SOUTHERN PART OF THE SUPERIOR PROVINCE**, by Pierre Doucet and Lucie Ste-Croix 13

1D – **NEW QUÉBEC AND TORNGAT OROGENS, RAE PROVINCE (FAR NORTH CRATON) AND UNGAVA TROUGH**, by Serge Perreault 27

1E – **GRENVILLE PROVINCE**, by Roch Gaudreau and Serge Perreault 35

1F – **ST. LAWRENCE PLATFORM AND APPALACHIA**, by Serge Lachance 45

CHAPTER 2 : Construction materials, industrial minerals and peat moss, by Yves Bellemare, Pierre Buteau and Henri-Louis Jacob 51

CHAPTER 3 : Financial assistance for mining exploration, by Pierre Marcoux and Jean Choinière 61

APPENDIX : Localization of producing mines, architectural stone quarries and peat bogs in Québec 65

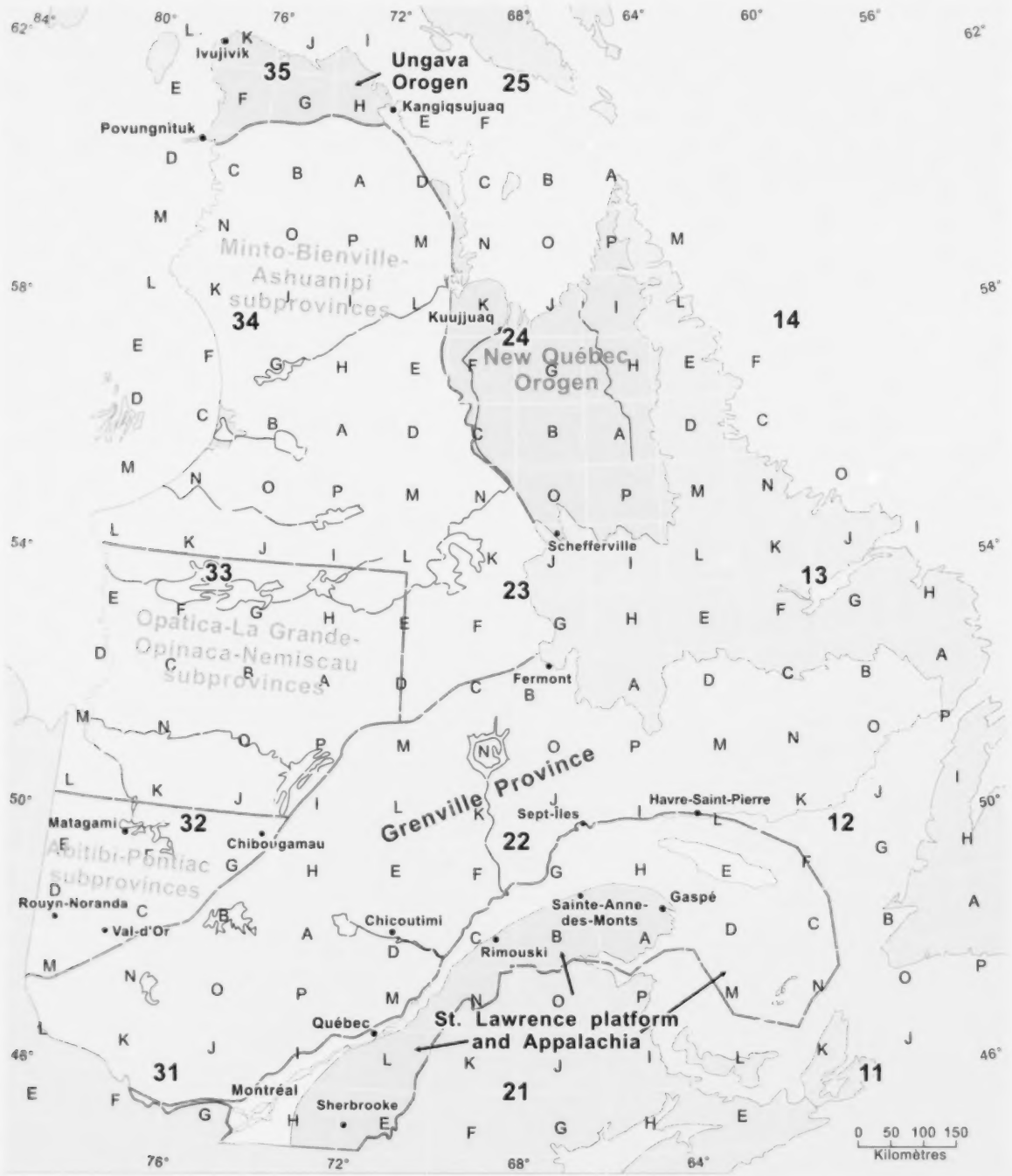


FIGURE 1 – Geological and territorial subdivisions used in this report.

1A

1A
The northern part of the Superior Province (Minto, Bienville and Ashuanipi subprovinces)

Roch Gaudreau

Bienville Subprovince 2
Fagnant Belt 2
Ashuanipi Subprovince 2
Minto Subprovince 2
Duquet Belt 2
Venus Belt 2
Lac Qullinaaraaluk Intrusion 2
Other Areas 3
Outlook 3

The Ungava Peninsula covers a vast region of about 350 000 km². In 1998, Géologie Québec launched the Far North mapping program at a scale of 1 : 250 000, which represents the largest regional geological mapping project undertaken in North America. In 2000, four additional surveys were completed, covering NTS sheets 34A, 34J, 34G, 34P, 35A and 35H.

In the year 2000, a total of 9 exploration projects were carried out, involving exploration expenditures of about $3.0 M (major companies: 62 %, junior companies: 37 %). A total of $190 000 was granted to various explorationists under the MRN's financial assistance programs. Exploration expenditures for 2000 may be broken down according to the commodity or the group of metallic substances being sought, as follows : Ni-Cu (-Co-PGE), 63 %; Cu-Zn-Au, 15 %; Au, 7 %; others, 15 %.

Bienville Subprovince

The Bienville Subprovince is a plutonic assemblage that lies in the southern part of the northern Superior Province. The Bienville is mainly formed of various migmatized orthogneisses of tonalitic to granodioritic composition, which host enclaves of supracrustal (iron formation, paragneiss, metavolcanic rocks) and plutonic (ultramafic) rocks.

FAGNANT BELT

The Fagnant volcano-sedimentary belt is located 60 km southeast of Kuujjuarapik (NTS 33N/02). This supracrustal belt is characterized by quartz-magnetite-grunerite iron formations, biotite-hornblende-magnetite-garnet schists, chlorite schists, metatuffs, and mafic volcanic rocks. **Virginia Gold Mines** and the **Mackenzie Watson Syndicate** discovered an auriferous structure more than 300 m long, which yielded up to 2.2 g/t Au over 6 m, including 3.4 g/t Au over 3 m. In 2000, their efforts were focussed on the extensions of the known mineralized zones (6; Figure 1A-1).

Ashuanipi Subprovince

The Ashuanipi Subprovince is mainly composed of paragneisses (metatexites, diatexites), mafic metaplutonic rocks, and felsic, orthopyroxene-garnet-biotite orthogneisses (tonalite, diorite), cross-cut by synkinematic pyroxene-bearing tonalite sills and plutons. In 2000, **Falconbridge Ltd.** conducted a large airborne geophysical GEOTEM survey (Mag-EM) in the Lac Desceliers area (NTS sheet 23D/16). Geophysical conductors were subsequently ground-checked (1; Figure 1A-1).

Minto Subprovince

The Minto Subprovince consists of an amalgamation of geological assemblages composed of tonalitic rocks invaded by voluminous granitoid intrusions. Mapping by Géologie Québec in 1998, 1999 and 2000 helped identify about 40 previously unknown volcano-sedimentary belts. These belts exhibit geological settings comparable to those in the Kogaluk, Payne, Qalluviartuk and Duquet belts, where the mineral potential is well established.

DUQUET BELT

The Duquet belt is located 100 km east of Povungnituk (NTS 35B/06). This volcano-sedimentary belt extends for about 50 km along strike, and is 1 to 6 km wide. **Virginia Gold Mines**, **SOQUEM INC.** and **Exploration Cambiex** initially outlined two types of mineral occurrences, namely gold associated with sericite-anthophyllite schists, and polymetallic (copper, zinc, gold) volcanogenic or epithermal mineralization associated with sericitized felsic volcanic rocks (9; Figure 1A-1). Several gold and polymetallic mineral occurrences have been discovered since then, including the "VMS" zone (6.4 % Cu, 3.4 % Zn, and 64 g/t Ag over 1.5 m) and the "Vein" zone (6.6 g/t Au over 2.1 m). The program in 2000 consisted of 12 diamond drillholes, totalling 1 485 m.

VENUS BELT

The Venus belt is located about 100 km north of the Trans-Taïga road and the Fontanges airport (NTS 23M/11). It extends for nearly 30 km along strike, and its southeast portion may reach over 10 km in width. It is mainly composed of basalts, gabbros, komatiitic lavas, intrusive ultramafic rocks, felsic to intermediate tuffs, as well as oxide and silicate-facies iron formations. In 2000, **Virginia Gold Mines** and **Billiton Metals Canada** carried out detailed mapping to fully understand the geological setting of nickel occurrences. Four new mineralized zones were uncovered. The best channel samples yielded grades of 4.4 % Ni, 0.68 % Cu, 0.14 % Co, and 2.98 g/t Pt-Pd over 2 m on the MIA showing; 1.82 % Ni, 0.33 % Cu, 0.05 % Co, and 1.47 g/t Pt-Pd over 2 m on the Pantoufle showing; and 1.07 % Ni, 0.23 % Cu, and 1.32 g/t Pt-Pd over 8.4 m on the Nancy showing. An extensive diamond drilling program, totalling 4 617 m, was completed late in the year to test geophysical targets.

LAC QULLINAARAALUK INTRUSION

The Ministère des Ressources naturelles (MRN) announced, on August 31, 2000, the discovery of a significant nickel-copper showing, located 10 km north of Lac Qullinaaraaluk, about 200 km southeast of Inukjuak (NTS sheet 34G/10). A draw ensued on September 15, 2000, in

which **SOQUEM INC.** obtained an exploration licence around the discovery zone (7; Figure 1A-1). **SOQUEM INC.** concluded a joint venture agreement with **Falconbridge Ltd.** to explore the area in 2001. The Lac Qullinaaraaluk massive sulphide showing is located in the east-central portion of a mafic to ultramafic intrusion. The intrusion mainly consists of melanocratic gabbro with a few pyroxenitic horizons. Seven surface samples yielded grades between 1.71 and 2.60 % Ni, 0.08 to 1.80 % Cu, and 0.14 to 0.27 % Co.

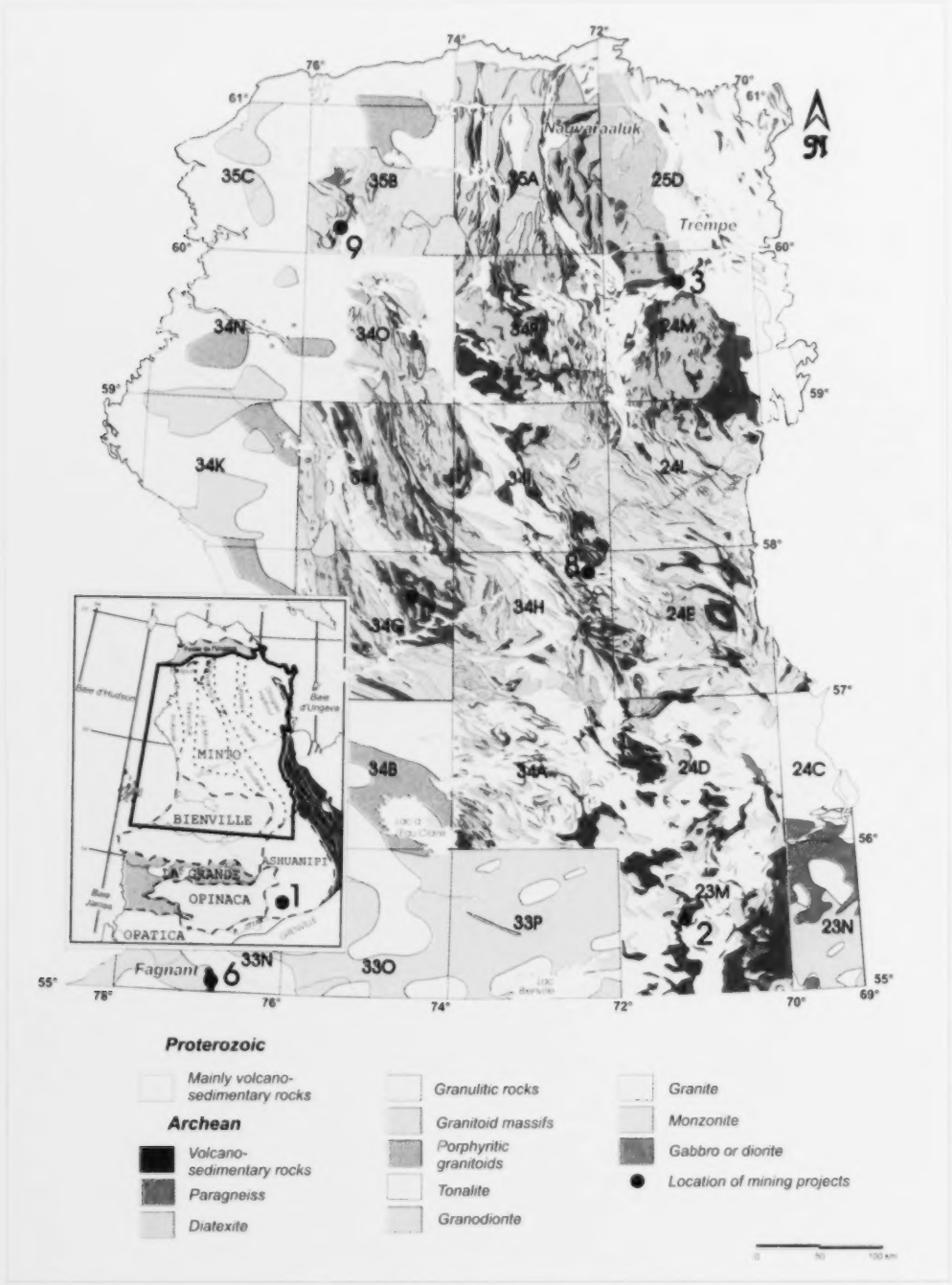
OTHER AREAS

In 1996, **Ashton Mining of Canada** and **SOQUEM INC.** began a vast regional geochemical reconnaissance project, to search for diamondiferous kimberlites in the Superior Craton. Their 2000 program resulted in the identification of a number of occurrences of kimberlite indicator minerals, some of which coincide with aeromagnetic anomalies typical of kimberlites. Indicator mineral dispersion patterns suggest the presence of multiple sources for certain targets.

The **Nunavik Mining Exploration Fund** continued its exploration activities in 2000 on two base and precious metal properties. The best grades obtained from surface samples are : 3.46 g/t Au, 2.6 g/t Ag and 0.8 % Cu on property no. 5400-5, located in NTS sheet 34H/16 (8; Figure 1A-1). The mineral occurrences are associated with the Qijuttuq volcano-sedimentary belt.

Outlook

Major exploration programs for nickel, copper, and cobalt are expected in 2001 within the Venus belt, on the Gayot project, as well as on the MRN's discovery in the Lac Qullinaaraaluk area. Diamond exploration should also remain at the forefront in the area.



Modified from Labbé 1999

FIGURE 1A-1 – Exploration project sites in the MINTO-BIENVILLE-ASHUANIPI subprovinces in 2000.

TABLE 1A-1 - Exploration work in the Ashuanipi, Bienville and Minto subprovince in 2000.

No	NTS	COMPANY	PROJECT	SUBS.	WORK [1]
1	23D/16	Falconbridge	Lac Desceliers (PEM 1518)	Ni-Cu-Co, Pt-Pd	GpA(Mag-EM), Pr, G, E
2	23M/06, 10, 11	Mines d'Or Virginia / Billiton Metals Canada	Gayot (PEM 1314, 1317, 1406, 1493, 1494), (Ceinture Vénus)	Ni-Cu-Co, Pt-Pd	E, G, Gp(Mag-EM), PEM, Pr, T, S(36;4617)
3	24M/14, 15	Fonds d'exploration minière du Nunavik	5400-3-2000 (Ceinture Gorribon)	Au-Ag, Cu	G, Pr, E
4	33 Nord, 23 Ouest	SOQUEM INC., Ashton Mining of Canada	Québec regional Joint Venture	Diamant	GpA(Mag), Pr, G, E, Gc(t,ro)
5	33 Nord, 34 et 23 Ouest	SOQUEM INC.	Reconnaissance Minto	Ni-Cu, Au	Pr, E
6	33N/02, 03	Mines d'Or Virginia / Syndicat Mackenzie Watson	Lac Fagnant, (PEM 1223, 1305)	Au	Pr, G, E, T, Gc(t)
7	34G/10	SOQUEM INC. / Falconbridge ltée.	Qullinaaraaluk (PEM 1580, 1581)	Ni-Cu-Co, Pt-Pd	ET
8	34H/16	Fonds d'exploration minière du Nunavik	5400-5-2000 (Ceinture Qijuttuq)	Au-Ag, Cu	G, Pr, E
9	35B/03, 05, 06	Mines d'Or Virginia / SOQUEM INC. / Cambiex	Duquet, (PEM 1213)	Au-Cu-Zn-Ag	S(12;1485), E, G, Pr

1. LÉGENDE DES TRAVAUX D'EXPLORATION

E	Sampling	Mag	Magnetic survey
EM	Electromagnetic survey	PP	Induced polarization survey
G	Geological survey	Pr	Prospecting
Gc	Undefined geochemical survey	Rad	Radiometric survey
Gc(ro)	Rock geochemical survey	S(nb m)	Diamond drilling (number : total metre)
Gc(t)	Till geochemical survey	TBF	VLF electromagnetic survey
GpA	Airborne geophysical survey	☐	MRN subsidized project

1B
The James Bay region: The central part of the Superior Province (Opatica, Opinaca, Nemiscau and La Grande subprovinces)

Patrick Houle

Frotet-Evans Area 8
Eastmain Area 8
La Grande Area 8
Outlook 9

In the James Bay region, exploration expenditures amounted to $5.8 M for the year 2000, including $0.82 M in financial assistance from the Québec government, through its financial assistance programs for surface exploration work and junior companies. Furthermore, an amount of $1 M was invested in mapping surveys and geoscience studies by the Québec government. A total of 26 148 metres were drilled. In 2000, the region was witness to at least 42 exploration projects. The highlight of the past year was the discovery, by **Majescor Resources** and **Ashton Mining of Canada / SOQUEM INC.**, of kimberlite indicator minerals in the Wemindji-Caniapiscau and Témiscamie-Corvette corridors. Recent announcements by these companies convinced other mining companies to take a second look at the potential of the James Bay region for diamondiferous kimberlites. Exploration efforts were mainly focussed on the Frotet-Evans, Eastmain, and La Grande greenstone belts.

Frotet-Evans Area

A total of 14 projects were active in the Frotet-Evans area, for an aggregate amount of $2 M, which represented 34 % of off-minesite exploration expenditures in the James Bay region.

In the eastern part of the Frotet-Evans belt (the Evans sector), **Nuinsco Resources**, **Novawest Resources**, and **Goldeye Exploration** (15; Figure 1B-1) formed a partnership to explore a block of 1 200 claims in the area west of Lac Rocher. Since the initial discovery by **Nuinsco Resources** in January 1999, which had yielded a mineralized intersection of 10.8 % Ni, 0.25 % Cu, and 0.23 % Co over 3.2 m, the three companies have concentrated their efforts on two claim blocks west of Lac Rocher, namely, the Lac Ouagama and the Lac Salamandre blocks. In early 2000, a large airborne, deep penetration geophysical survey covering both claim blocks, which are underlain by mafic to ultramafic rocks, was completed. The survey revealed 114 anomalies, 40 of which were interpreted as high-priority targets for an upcoming field program.

Also in the eastern Frotet-Evans belt, **SOQUEM INC.** and **Ressources Strateco** conducted a drill program on the Quenonisca project (20; Figure 1B-1) in the search for massive sulphides associated with iron formations. On the Lac Evans property (19; Figure 1B-1), **CaribGold Resources** and **Beaufield Consolidated Resources** outlined several soil anomalies in a geological setting favorable for Zn, Cu, Ag, and Au occurrences.

The north part of the Frotet area contains the Troilus porphyry Cu-Au ore deposit. As of January 1, 2001, reserves at the Troilus mine, owned and operated by **Inmet Mining Corporation** since 1997, stand at 31.1 Mt grading 0.095 % Cu, 1.0 g/t Au, and 0.90 g/t Ag. **Inmet Mining Corporation** carried out a 50-hole drill program on the Troilus North property, located near the minesite (11; Figure 1B-1). Numerous boreholes intersected the altered diorite of the Troilus mine, commonly associated with gold mineralization.

Eastmain Area

A total of 14 projects were carried out in the Eastmain area, for an aggregate amount of $1.8 M, which represented 31 % of off-minesite exploration expenditures in the James Bay region. Most of these projects were concentrated in the Upper Eastmain greenstone belt.

In the Middle Eastmain area, **SOQUEM INC.** and **Eastmain Resources** continued their intensive program around the Eau Claire lode gold deposit (22; Figure 1B-1). Surface stripping to the west of known veins revealed six new, parallel, auriferous quartz-tourmaline veins (veins 11 through 16). Vein 16 yielded a grade of 21.3 g/t Au over a length of 67 m and an average width of one metre. Vein 11 also yielded assays up to 355 g/t Au over 0.9 m. Exploration on the Clearwater property has revealed a large number of en echelon quartz-tourmaline veins with high-grade gold in a zone 1 200 metres long by 500 metres wide. The 2000 drill program yielded over 60 mineralized intersections assaying between 5 and 200 g/t Au, and confirmed the depth extension of the auriferous structures. The latest resource estimate (1999) mentioned a total of 544 000 t at 11.1 g/t Au for veins G, I, and J. Following stripping and drillhole campaigns, an update including a thorough assessment of veins 11 through 16, as well as veins O, P, Q, and R, should substantially increase the geological resource estimate for the Eau Claire deposit.

The Upper Eastmain greenstone belt also offers an attractive gold and copper potential. It hosts the Eastmain ore deposit, held by **MSV Resources**, in which reserves are estimated at 863 988 t grading 11.94 g/t Au. This area may also host copper-zinc occurrences associated with felsic volcanic rocks. During the year, **Majescor Resources** collected over 600 till samples on its Eastmain project (5; Figure 1B-1), located 40 km northwest of the Eastmain ore deposit. Results of the sampling program outlined a vast anomaly of kimberlite indicator minerals, including a high content of peridotitic garnet, 20 to 25 % of which are G10 pyrope garnets. Along the same lines, **Ashton Mining of Canada** and **SOQUEM INC.** (4; Figure 1B-1) revealed that they had identified numerous kimberlite indicators in the area, some of which coincide with aeromagnetic anomalies.

Ditem Explorations undertook, with the help of MRNQ financial assistance, a drill program on the Otish diamond property (3; Figure 1B-1). A kimberlite was intersected by the upper part of one drillhole. Another vertical drillhole, collared at the same location, failed to intersect the kimberlite at depth.

La Grande Area

A total of 19 projects were carried out in the La Grande area for an aggregate amount of $2 M, which represented 35 % of off-minesite exploration expenditures in the James Bay region. Exploration projects were concentrated in two

sectors, the western La Grande and the eastern La Grande areas.

In the western sector, **Matamec Explorations** outlined, on its Sakami property, three distinct and parallel auriferous zones (25; Figure 1B-1). The best results from channel samples were : 1.87 g/t Au over 9.7 m (zone 23), 1.7 g/t Au over 20.82 m (zone 25), and 2.09 g/t Au over 9.97 m (zone 26), in a folded sequence of volcano-sedimentary rocks and iron formation of the Yasinski Group. An important feature to note is the very close spacing of these zones, as they lie within 47 metres (between zones 23 and 25) and 42 metres (between zones 25 and 26-27) of each other. Finally, several samples with visible gold were also recovered.

At the western tip of Lac Ménarik, **Dianor Resources** continued to work on the PEM 1404 project, comprising the Yasinski, Yasinski North, and PEM 1404 properties (27; Figure 1B-1). A channel sample testing the extension of the Pierre zone, 100 metres west of drillhole 1404-03 (0.89 g/t Au over 68.25 m), yielded 1.9 g/t Au and 2.3 g/t Ag over 17.7 m. These results confirm the importance of a competent, locally fractured, brecciated and sheared, intermediate to felsic porphyry intrusion on the property. This intrusion hosts the vast majority of gold occurrences within a 5-km area. **Cambior** and **Virginia Gold Mines** continued their till sampling, stripping, and mapping on the La Grande Sud property (32; Figure 1B). This work uncovered a new auriferous sector about 2 km east of known showings. A system of quartz-tourmaline veins with visible gold extends over an estimated length of 1.2 km.

To date, no diamondiferous kimberlite pipes have been reported in the James Bay region, other than on the property held by **Ditem Explorations**, at the margin of the Otish basin. However, **Majescor Resources** (24; Figure 1B-1) identified numerous angular kimberlite fragments up to 2.5 cm in diameter, as well as 9 000 indicator minerals, several of which exhibit a very fragile magmatic reaction rim. These results were obtained from a till sampling program (319 samples) on the Wemindji project, located about 45 km east of the town of Wemindji, in the James Bay region. These new data strongly support the conclusions by Mr. James Moorhead and his team from the Ministère des Ressources naturelles du Québec, who defined the Wemindji-Caniapiscau corridor as a high-potential exploration target for economic diamondiferous kimberlite pipes.

In the eastern part of the La Grande area, several companies continued their exploration programs begun in 1998 and 1999. On the Corvet West - Island Lake project (37; Figure 1B-1), **Virginia Gold Mines** and **Sudbury Contact Mines** found new gold and polymetallic showings within a 25-km long auriferous corridor. New results include a channel sample grading 3.41 g/t Au over 2.0 m on the Deca-1 showing, and surface samples grading up to 150 g/t Ag, 1.89 % Cu, 1.45 % Zn, and 300 ppb Au in a quartz-muscovite-biotite schist with local chalcopyrite-sphalerite-galena mineralization. On the Tilly property (38; Figure 1B-1), **Sirios Resources** delineated at least three hydrothermal breccia zones mineralized in Cu-Mo-Ag-Au, hosted in porphyritic granodiorite, quartz diorite, and tonalite. Drillhole Ti-01 in the Yo showing yielded 0.03 % Cu and 0.07 % Mo over 280 feet.

On the Poste LeMoyne Extension property (36; Figure 1B-1), partners **Virginia Gold Mines** and **TGW Corporation** (formerly Boreal Exploration) discovered two mineralized outcrops along the lateral extensions of trench A (Orfé showing), which had yielded, in 1998, grades up to 21.57 g/t Au over 5 m in a channel sample and 6.14 g/t Au over 5 m in drillhole PLE-98-02. The gold is hosted in an iron formation. Channel samples taken in new trenches (01 and 03) yielded grades up to 21.02 g/t Au over 3 m (TR-01) and 11.53 g/t Au over 3 m (TR-03). On the Aquilon property (41; Figure 1B-1), located about 10 km south of the LA-1 hydroelectric complex, **Sirios Resources**, in partnership with **SOQUEM INC.**, confirmed that the Lingo and Muscovite gold-bearing veins extend over a surface strike length of 250 to 300 m, and also continue at depth, as indicated by drilling. The best drill results were 1.5 g/t Au over 3.7 m in the Fleur de Lys showing.

Virginia Gold Mines and **Cambior** reported several new gold showings on their Caniapiscau property (42; Figure 1B-1). The DeadMouse Extension showing yielded grades reaching 14.14 g/t Au in grab samples and 5.9 g/t Au over 3.8 m in channel samples. A channel sample from the DeadMouse showing yielded 5.1 g/t Au over 2 m.

Outlook

In 2001, the search for gold mineralization in iron formation, or associated with major deformation zones in the principal volcano-sedimentary belts of the James Bay region is likely to continue. Furthermore, porphyry-type Cu-Au-Ag deposits should remain a high-priority target. News of the discovery of kimberlite indicator minerals in the Wemindji-Caniapiscau and Témiscamie-Corvette corridors attracted mining companies involved in diamond exploration to the Archean cratonic rocks of northern Québec. Finally, mafic to ultramafic intrusions with chromitite and platinum group elements should also attract their share of exploration work during the upcoming year.

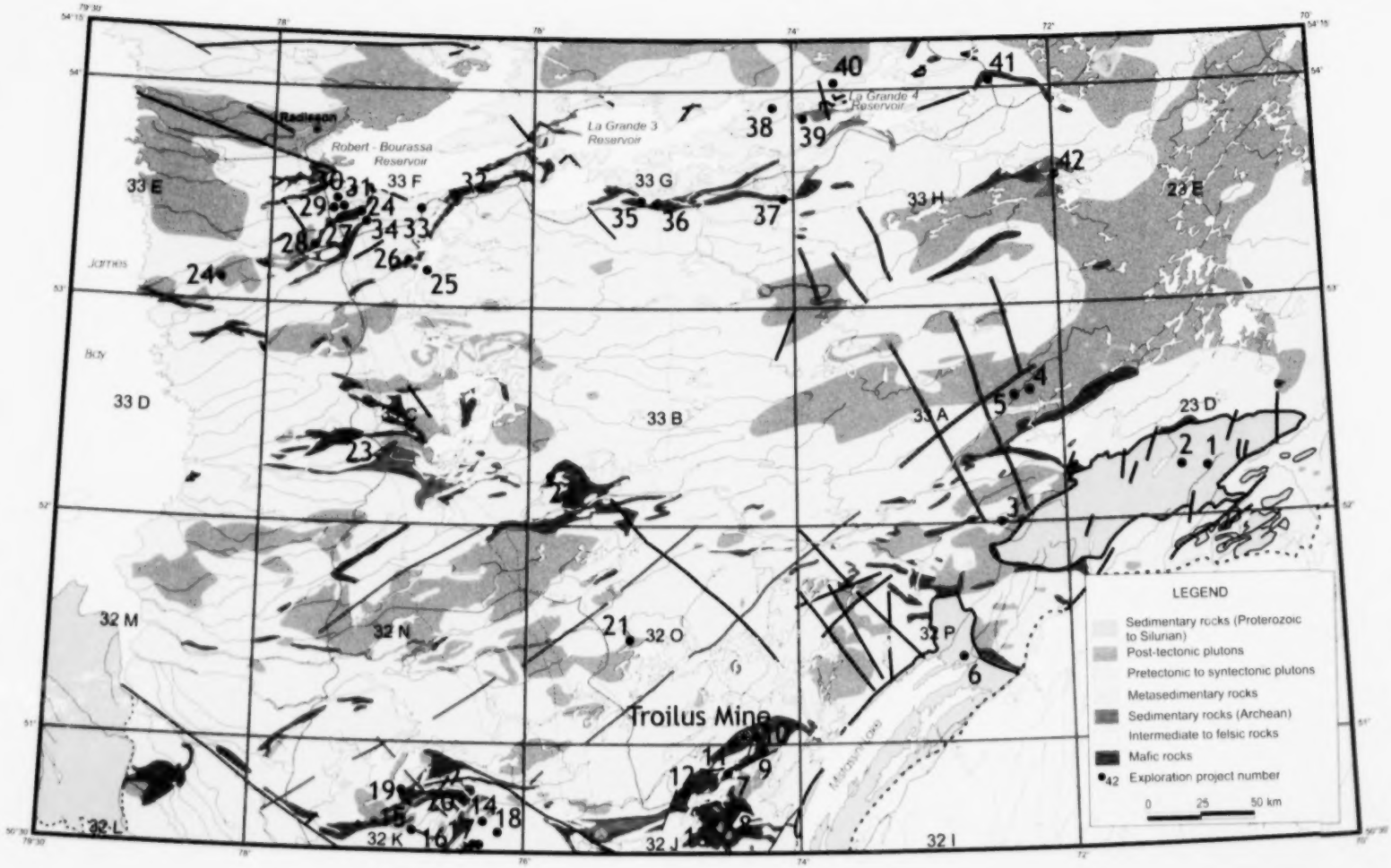


FIGURE 1B-1 – Location of mining exploration projects sites in James Bay area for 2000.

Table 1B-1. Exploration projects on the James Bay area in 2000 (see figure 1B-1).

N°	NTS	COMPANY	PROJECT	SUBSTANCE	WORK (1)
1	23D/02 et 23D/03	TGW Corporation	Péribonca-1	Au	E
2	23D/03	TGW Corporation	Epsilon	Au	Pr, E
3	33A/01	Ditem Explorations	Otish Mtn Diamond	Diamant	Gc, S (7:190)
4	32P, 33A	Ashton Mining of Canada et SOQUEM INC.	Ungava	Diamant	GpA, Gc(t)
5	33A/09, 33A/10, 33A/15, 33A/16	Ressources Majescor	Eastmain	Diamant	Gc(t)
6	32P/07	Dominique Doucet et Réjean Girard	Cheno	Au	Pr
7	32J/15	SOQUEM INC.	Troilus Free Gold	Au-Cu	Pr
8	32J/15	SOQUEM NC. et Explorations Minières du Nord	Clairy	Zn-Cu-Au-Ag	Pr, Gp, E, S (:4300)
9	32J/16	SOQUEM INC.	Rea-Frotet (225)	Cu-Zn-Au-Ag	Pr, E
10	32O/01	Gervais Simard	Elec-Troilus	Cu-Au	Pr, E
11	32J/15	Corporation Minière Inmet	Troilus Nord	Cu-Au	S(50:10664)
12	32J/10	TGW Corporation	Moblan	Cu-Zn-Au-Ag	Pr, Gp
13	32J/10	Ressources Sirios	Monique	Cu-Zn-Au-Ag	Pr, G, E, S(9:1041)
14	32K/09	Falconbridge et Noranda	Lac Rocher PN 146	Ni-Cu-Co-EGP	Gp, S(5:500)
15	32K/11	Nuinsco Resources, Novawest Resources et Goldeye Explorations	Lac Ouagama - Option Audet	Ni-Cu-Co-EGP	Pr, G, GpA
16	32K/09	RJK Explorations et Noront Resources	Lac Rocher	Cu-Zn	Gp, S(1:160)
17	32K/07 et 32K/08	Sylvain Brousseau	Lac Rocher	Ni-Cu-Co-EGP	Pr
18	32K/07 et 32K/08	Réal Gauthier et Roby Michel	Lac Rocher	Ni-Cu-Co-EGP	Pr
19	32K/15	Caribgold Resources et Beaufield Consolidated Resources	Lac Evans	Zn-Cu-Au-Ag	Pr, E, Gc
20	32K/09 et 32K/10	SOQUEM INC. et Resources Strateco	Quénonisca	Zn-Cu-Au-Ag	S(8:1057)
21	32O/06	Daniel Blacksmith et Emily Blacksmith	Blacksmith Copper	Cu-Au	Pr
22	33B/04	SOQUEM INC. et Eastmain Resources	Clearwater	Au	G, E, T, S(36:5550)
23	33C/06	Robert Jean et Ghislaine Fournier	Rivière Opinaca	Cu-Zn	Pr
24	33E/01 et 33F/05	Resources Majescor	Wemindji	Diamant	Gc(t), GpA
25	33F/02	Matamec Explorations	Sakami	Au-Ag	Pr, E
26	33F/02 et 33F/03	Mines d'Or Virginia	Apple-Marie-Claude	Au-Pd-Pt	Pr, E
27	33F/05 et 33F/06	Ressources Dianor	1404	Au-Ag-Pd-Pt	Pr, G, T, Gp, E, S(:1200)
28	33F/05	Ressources Dianor	Threegold	Au-Ag-Pd-Pt	Pr, E
29	33F/05 et 33F/06	Henry Atsynia	A.P.H.A.-2000	Au-Ag-Pd-Pt	Pr
30	33F/06	Stanley Miniquaken	A.P.S.M.-2000	Au-Ag-Pd-Pt	Pr
31	33F/06	David Swallow	A.P.D.S.-2000	Au-Ag-Pd-Pt	Pr
32	33F/10	Cambior et Mines d'Or Virginia	La Grande Sud(244)	Au	Gc(t), G, T
33	33F/07	Serge Caron	Sakami	Au-Zn	Pr
34	34F/06	Ressources Minière Pro-Or	Ménarik	Cr-Pt-Pd	ET
35	33G/11	Mines d'Or Virginia et Sudbury Contact Mines	Lac Guyer	Au-Ag-Cu-Zn	Pr
36	33G/06	TGW Corporation et Mines d'Or Virginia	Poste Lemoyne Extension	Au	Pr, G, Gp, T
37	33G/08 et 33G/09	Mines d'Or Virginia et Sudbury Contact Mines	Lac Corvet Ouest-Island Lake	Au-Ag-Cu-Zn	Pr, G, Gp, S
38	33G/16	Ressources Sirios	Tilly	Cu-Mo-Au-Ag	Pr, Gc(t), T
39	33H/13	Ressources Sirios et SOQUEM INC.	Tilly-Prospect	Au-Cu	Gc(t)
40	33I/04	Ressources Sirios	Transtaïga	Cu-Au	Pr, Gc(t)
41	33I/01 et 33I/02	Ressources Sirios et SOQUEM INC.	Aquilon	Au	Pr, G, T, E, S(3:1486)
42	33H et 23E	Cambior et Mines d'Or Virginia	Caniapiscau	Au-Cu-Zn	Pr, G, E, Gp

LEGEND : **Pr** : prospecting; **G** : geological survey ; **Gp** : ground or down-hole geophysical survey ; **GpA** : airborne geophysical survey ; **Gc** : geochimical survey ; **Gc(t)** : till geochemistry ; **E**: sampling ; **Ev** : bulk sampling ; **ET** : technical study and compilation ; **EF** : feasibility study ; **S** : drilling (number of hole : meters drilled) ; **Sci** : reverse circulation drilling ; **T** : trench and stripped area ; **TM** : metallurgical testing.

☐ MRN subsidized project

1C
The southern part of the Superior Province

Pierre Doucet
Lucie Ste-Croix

Abitibi and Pontiac Subprovinces 14
Outlook 15

Abitibi and Pontiac Subprovinces

The Abitibi and Pontiac subprovinces occupy the southern part of the Superior Province in Québec. The Abitibi Subprovince is the largest and among the richest and best known of the world's Archean greenstone belts. The Cadillac - Larder Lake fault, an important structure that extends more than 100 km in an east-west direction in Québec and Ontario, separates the Abitibi Subprovince from the metasedimentary Pontiac Subprovince.

The Abitibi Subprovince is world-renowned for the large number and the high grade of its precious metal and polymetallic ore deposits. Exploration and mining operations have made this territory one of the principal mining regions of Québec for nearly a century.

In 2000, 195 exploration projects were carried out in the Abitibi and Pontiac subprovinces, for a total of $27.8 M in exploration expenditures. One hundred and five exploration projects focussed on gold occurrences, for a total investment of nearly $12 M. Ninety exploration projects targeted polymetallic ore deposits, a significant increase of 23 % relative to the 73 projects for 1999. These projects called for a total investment of $15.8 M. Under the Québec mineral exploration assistance program, 18 grassroots prospecting projects and 26 advanced prospecting projects received over $550 000 in financial assistance, whereas 27 company-driven exploration projects received $1.23 M. Seven junior companies received $538 848 as working capital from the assistance program for junior companies. Finally, 16 drillholes were subsidized in 2000, for a total of nearly $274 000 under the deep drilling assistance program.

International Taurus Resources and **Fairstar** completed their drill program on the Fénélon property (47) in preparation for a surface bulk-sampling program. The most significant results were : 15.9 g/t Au over 1.0 m, 6.5 g/t Au over 1.3 m, 117.6 g/t Au over 6.7 m, 16.4 g/t Au over 0.3 m, and 8.49 g/t Au over 1.0 m. The mineralization is near surface.

Stripped outcrops by **Maude Lake Exploration** on the Comtois property (28), exposed new gold-bearing units west of the Osborne zone (inferred and indicated resources of 705 801 tonnes at 8.43 g/t Au). The following channel sample results were reported : 9.15 g/t Au over 8.0 m, 8.89 g/t Au over 2.0 m, 3.90 g/t Au over 1.0 m, and 1.12 g/t Au over 1.0 m. **Maude Lake Exploration** launched a second stripping program and a drill campaign.

Cameco Gold and **Major General Resources** obtained significant results on their Despinassy project (35). The best drill intersections were : 3.7 g/t Au over 11.1 m, 8.5 g/t Au over 2.2 m, 16.7 g/t Au over 1.7 m, and 5.1 g/t Au over 9.7 m. The gold is hosted in a vast system of veins.

Coleraine Resources discovered a volcanogenic alteration pipe hosting gold, silver, copper, and zinc mineralization on the Perron project (90), along the extension of drillhole P-99-51. The alteration pipe yielded grades of 1.67 g/t Au, 0.09 % Cu, 0.7 % Zn, and 15.1 g/t Ag over 19.8 m, including a section at 5.96 g/t Au, 0.2 % Cu, 1 % Zn, and 36 g/t Ag over 4.8 m.

Following a 50-hole drill campaign on the Francoeur mine property (7), **Richmont Mines** added 113 400 tonnes to the mine's resource estimate.

Agnico-Eagle continued its exploration efforts on the LaRonde minesite. Delineation drilling on Zone 20 South - El Coco revealed impressive gold grades above level 122. Delineation drillholes on Zone 20 North consistently yielded grades above the orebody average. Deep exploration drillholes returned grades of 3.77 g/t Au over 23 m and 6.85 g/t Au over 9 m. At the Kiena mine (41), **McWatters Mining** demonstrated the continuity of zones 446 and 438N, discovered in the winter of 1999.

South-Malartic Exploration and **Huntington Exploration** were very active on the Croinor project (91). Their best drill results were : 23.21 g/t Au over 11.1 m, 16.36 g/t Au over 2.4 m, 12.23 g/t Au over 15.1 m, and 8.59 g/t Au over 6.7 m. In May, the partners completed a pre-feasibility study of the near-surface ore deposit, which contains 1.1 Mt at a grade of 2.44 g/t Au.

The Perseverance project (P85) by **Noranda** attracted a lot of attention. Located near the Matagami airport, the ore deposit contains three near-surface mineralized zones: Equinox, Perseverance and Perseverance West. The results of 227 drillholes totalling 56 398 m indicate a total inferred resource of 5 Mt at a grade of 16.8 % Zn, 1.3 % Cu, 34 g/t Ag and 0.4 g/t Au. The company expects metallurgical tests and a feasibility study to be completed by the first quarter of 2001.

In May, **Cancor Mines** and **Inco** announced a resource estimate for the B zone on the Gemini property (P14). The zinc-rich body is reported to contain an indicated resource of 668 940 tonnes at 6.75 % Zn, 0.45 % Cu, 114.3 g/t Ag, and 1.75 g/t Au, and an inferred resource of 622 715 tonnes at 2.98 % Zn, 0.71 % Cu, 60.6 g/t Ag, and 1.26 g/t Au. The copper zone contains an inferred resource of 721 310 tonnes at 1.69 % Cu, 0.23 % Zn, 54.4 g/t Ag, and 1.22 g/t Au. In October, the company announced the discovery of a new Cu-Zn-Ag-Au zone in the B zone, which yielded grades of 0.33 % Cu, 0.34 % Zn, 20.8 g/t Ag, and 1.08 g/t Au over 31.75 m, including 8 m at 0.98 % Cu, 0.64 % Zn, 58.1 g/t Ag, and 3.17 g/t Au. **Breakwater Resources** completed an extensive drill program at the Gonzague-Langlois mine (P30) in order to increase reserves. In August, it reported a drill intersection of 14.3 % Zn and 1.6 % Cu over 7 m. Mining operations were nevertheless interrupted at the end of November.

Metco Resources and **Cambior** obtained good results on the Orphée project (P65). The best intersections were : 0.45 % Zn over 8.0 m, 1.0 % Zn over 9.0 m, and 1.1 % Zn over 12.0 m. The Orphée deposit contains an estimated resource of 1.8 Mt at 4.3 % Zn, 0.5 % Cu and 11.8 g/t Ag. Drillholes on the Grevet-B property (P31) allowed **Metco Resources** and **Cambior** to increase the measured resource estimate for

the orebody at 306 000 tonnes of ore grading 9.92 % Zn, 0.52 % Cu, 22.8 g/t Ag, and 0.07 g/t Au.

In December, **Murgor Resources** confirmed the presence of Ni-Cu-PGE mineralization on the La Trêve I property (P86), northwest of Chapais. Channel samples yielded an average grade of 2.79 g/t PGE over 10 m, including 4.92 g/t PGE over 3.7 m. Grades of 0.10 to 1.1 % Cu and 0.15 to 0.58 % Ni were also reported. Also in december, **Aurora Platinum** announced spectacular results from initial drillholes on the Midrim property (P1), located 20 km northeast of Ville-Marie. A 19.7-m section from drillhole MR00-01 graded 2.99 % Cu, 1.85 % Ni, 0.07 % Co, 0.97 g/t Pt, 1.77 g/t Pd, and 0.48 g/t Au. A 10.35-m section from drillhole MR00-05 yielded 2.88 % Cu, 3.52 % Ni, 0.10 % Co, 0.59 g/t Pt, 3.36 g/t Pd, and 0.23 g/t Au. Another section from the same borehole returned 4.74 % Cu, 4.94 % Ni, 0.11 % Co, 1.24 g/t Pt, 4.71 g/t Pd, and 0.17 g/t Au over 6.3 m. The company is planning an extensive exploration program for 2001, including 10 000 m of diamond drilling. This announcement triggered a small staking rush in the Témiscamingue region in the final weeks of the year.

Outlook

One of the major points this year concerns the significant increase in the number of exploration projects for massive sulphide deposits, up 23 % relative to 1999 and the second consecutive increase in the last two years. The level of funding should be maintained for advanced projects, and exploration programs around producing mines should also continue. The very promising results obtained by **Noranda** on the Perseverance project suggest that this deposit could become the next mining operation to open its doors in the Abitibi region. Moreover, **Aurora Platinum**'s preliminary results in the Témiscamingue region in December helped stimulate exploration interest in this portion of the Pontiac Subprovince. Several promising prospects such as Caber, southwest of Matagami; Gemini, west of Joutel; Grevet-B, north of Lebel-sur-Quévillon; and Midrim, in the Témiscamingue region, are paving the way for a revitalization of mining exploration in northwestern Québec.

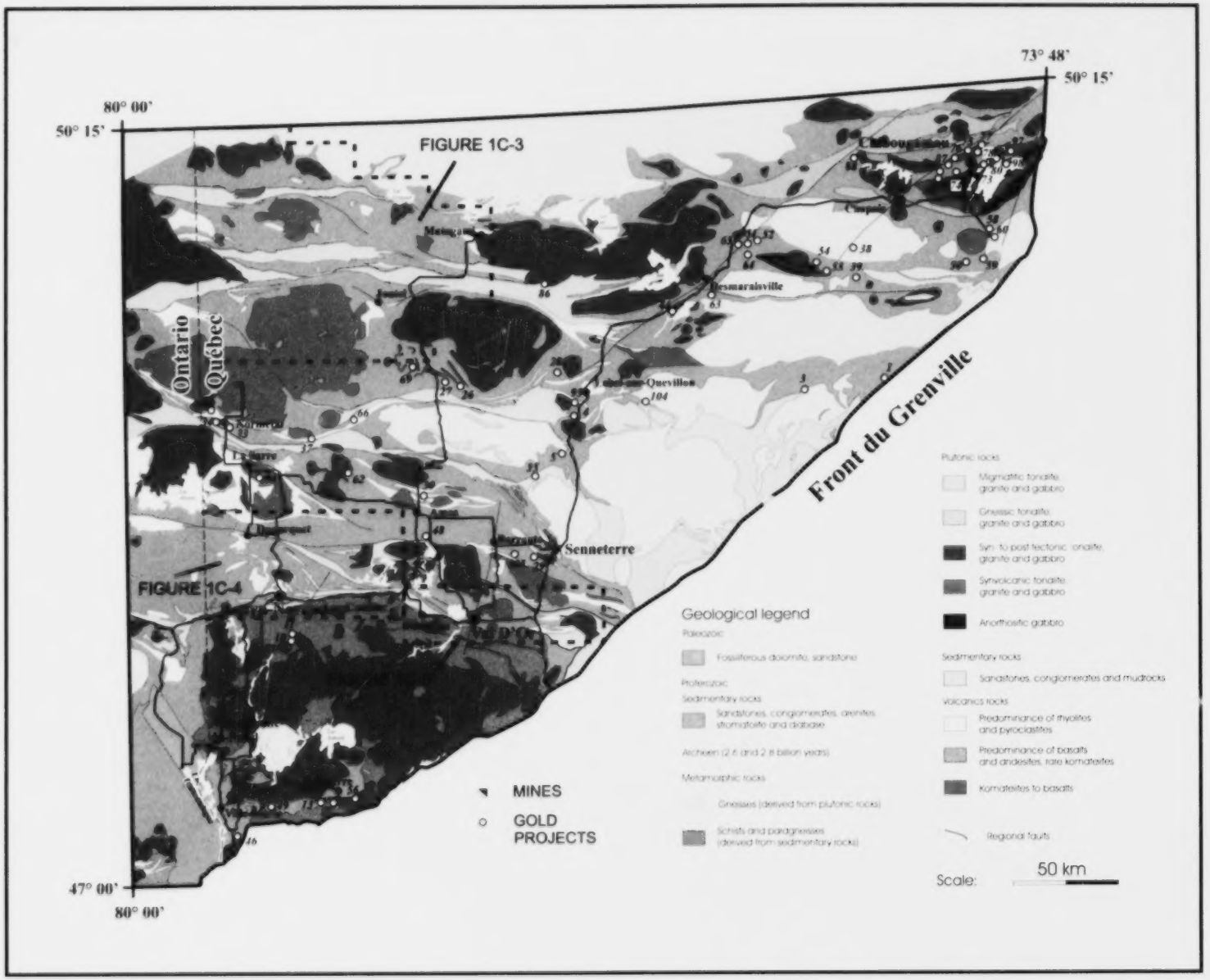


FIGURE 1C-1 – Location of exploration projects and gold operations in the Abitibi and Pontiac subprovinces. (Modified geology from Hocq & Verpaelst, 1994).

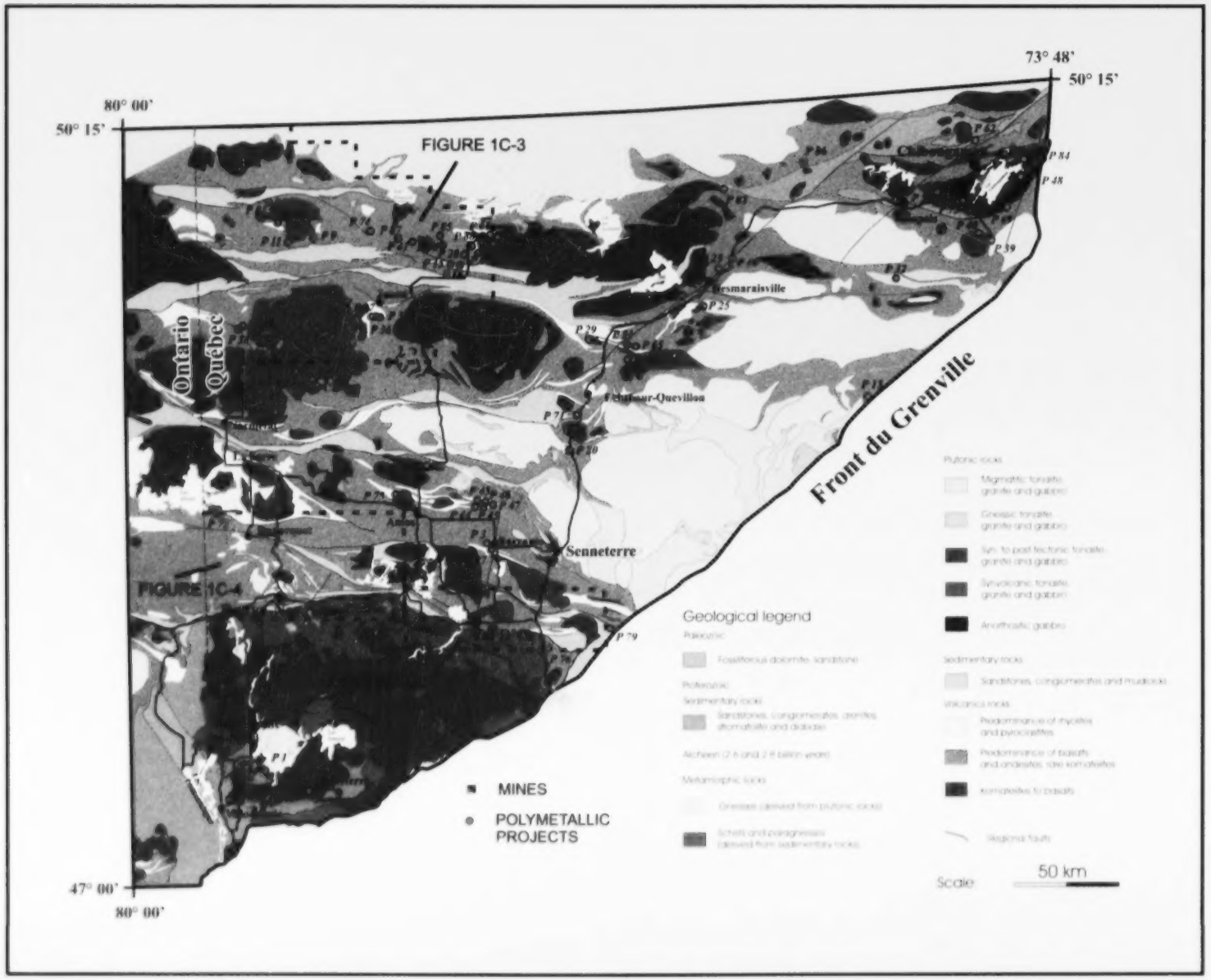


FIGURE 1C-2 – Location of exploration projects and polymetallic operations in the Abitibi and Pontiac subprovinces. (Modified geology from Hocq & Verpaelst, 1994).

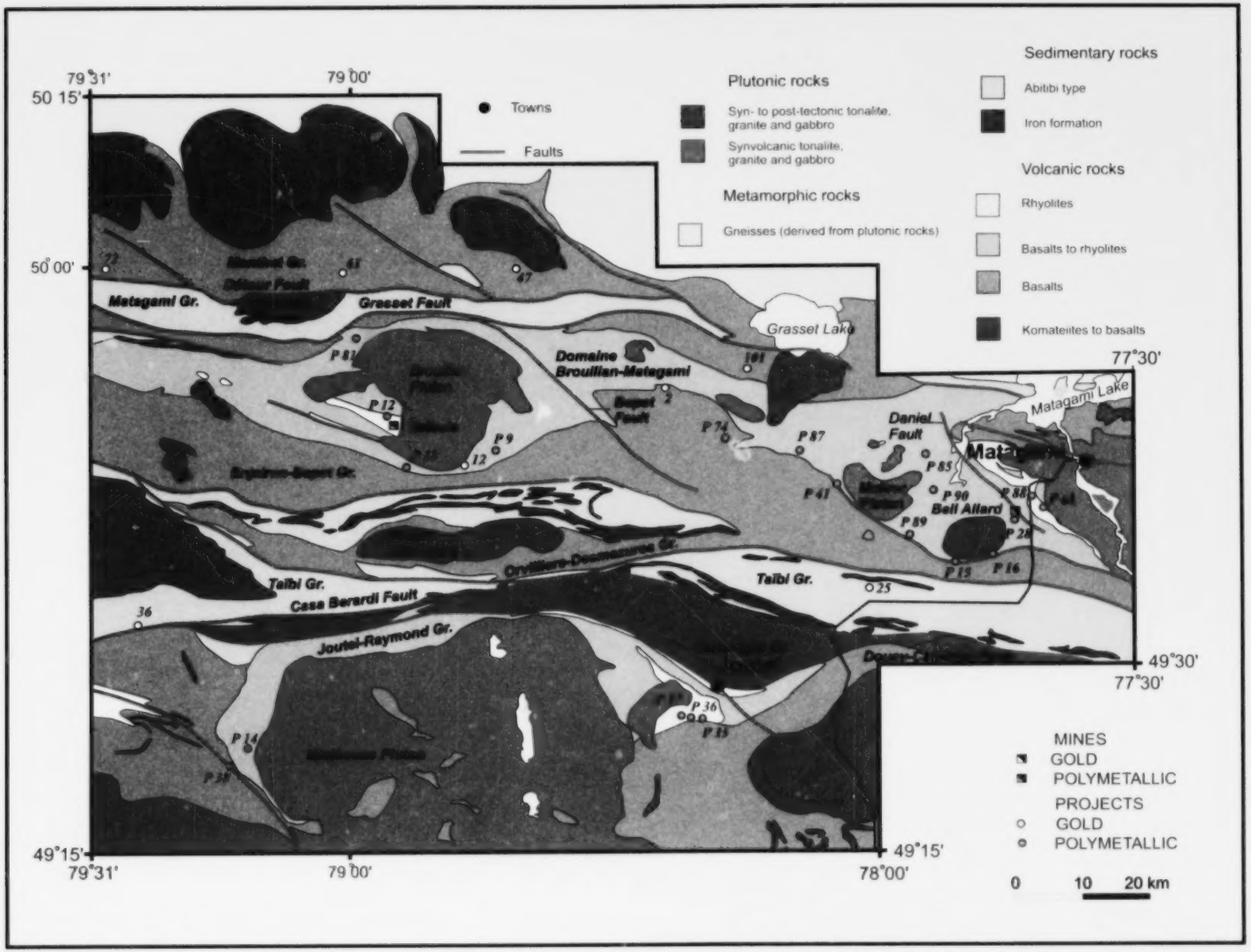


FIGURE 1C-3 – Location of exploration projects and mines in the Fénelon-Matagami-Casa Berardi-Joutel area. (Modified geology from Lacroix *et al.*, 1990)

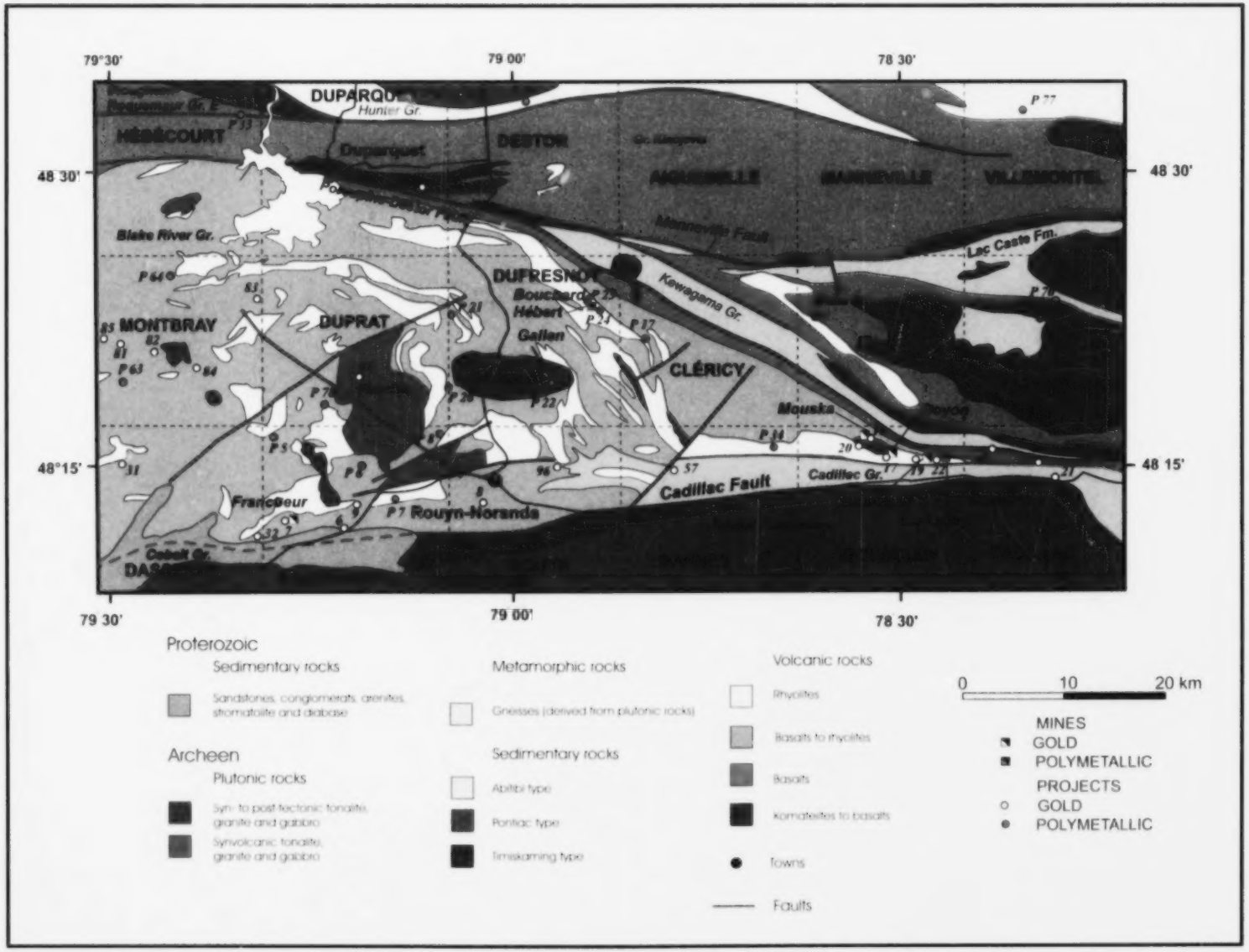


FIGURE IC-4 – Location of exploration projects and mines in the Rouyn-Noranda-Cadillac area. Modified geology from Avramtchev and Lebel-Drolet (1981) & Couture (1991).

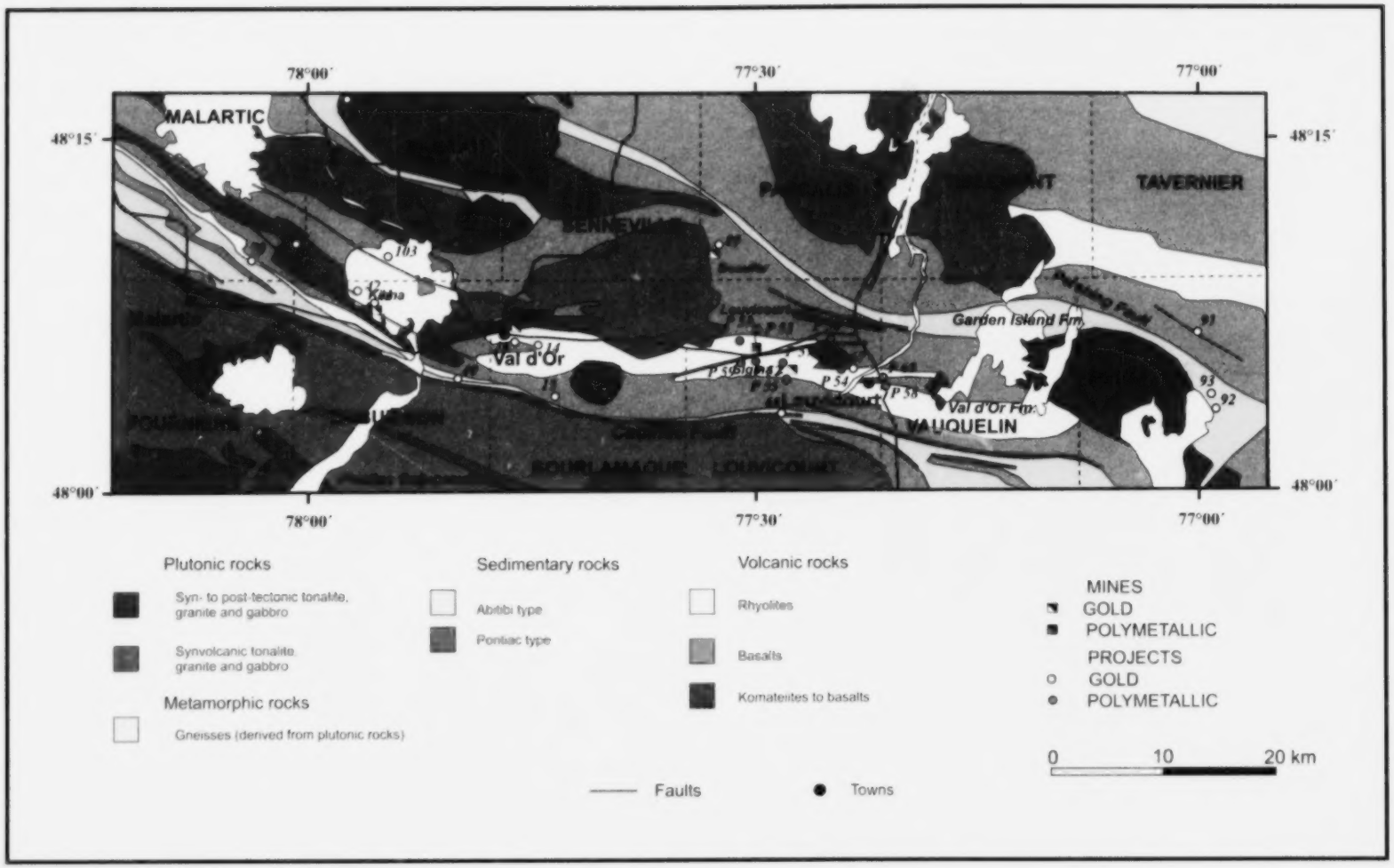


FIGURE IC-5 – Location of exploration projects and mines in the Malartic-Val-d'Or area. (Modified geology from Avramtchev and Lebel-Drolet 1981 & Couture 1991).

TABLE 1C-1 - Gold exploration in the Abitibi and the Pontiac subprovinces in 2000

N°	TOWNSHIP	FIG.	NTS	COMPANY	PROJECTS	SUBSTANCE	WORK[1]
1	32G/03	1C-1	32G/03	A. Bosum	Freeman East	Au-Cu-Zn-Ni	Pr
2	Bapst, Ste-Hélène	1C-3	32E/12	SOQUEM INC.	Bapst	Au	S(2:527), Mag, PP
3	Barry, Urban, Bailly	1C-1	32G/04	Resources Xemac inc.	Lac Barry	Au	S(11:547), T
4	Bartouille	1C-1	32C/14	C. Fortin et D. Fortin	Bartouille Est	Au-Cu	T, E
5	Bartouille	1C-1	32C/14	Cambior	Bartouille	Au-Cu-Zn	Gc(h)
6	Beauchastel	1C-4	32D/03	Mines Richmont inc.	Wasamac	Au	S(1:609)
7	Beauchastel	1C-4	32D/03	Mines Richmont inc.	mine Francoeur	Au	S(50:10295)
8	Beauchastel, Rouyn	1C-4	32D/03	SOQUEM INC./ Thundermin Res.	Lac Pelletier	Au	S(5:1775), T, G, Pr
9	Beauchastel, Rouyn	1C-4	32D/03	Globex Mining Enterprise	Beauchastel-Rouyn	Au	GpA, Pr
10	Bellecombe	1C-1	32D/02	P. Adomaitis	The Greek Project	Au-Ag-Cu-Zn	Pr
11	Bellecombe	1C-1	32D/02	R. Campbell	The blue nose	Au-Cu-Zn	Pr
12	Beschefer	1C-3	32E/16	SOQUEM INC.	B14-Beschor	Au	S(3:788)
13	Blondeau	1C-1	31M/07	D. Champagne	Lac Chevrier	Au	T, E, Gp
14	Bourlamaque	1C-5	32C/04	Exploration Maude Lake	NewBid	Au	S(8:1370)
15	Bourlamaque	1C-5	32C/04	Geomaque Exploration	Bourlamaque	Au	G
16	Bourlamaque	1C-5	32C/04	Mines McWatters	complexe Sigma-Lamaque	Au	S(159:11378), Gc(ro)
17	Bousquet	1C-4	32D/07	Cambior	mine Doyon	Au-Ag	ET
18	Bousquet	1C-4	32D/07	Cambior	mine Mouska	Au-Ag	S(55:14990)
19	Bousquet	1C-4	32D/07	Barrick Gold	mine Bousquet 2	Au-Ag-Cu	S(15:1648)
20	Bousquet	1C-4	32D/07	Cambior	Authier	Au-Cu	G
21	Cadillac	1C-4	32D/01	Queenston Mining inc.	Pandora	Au	S(5:1302)
22	Cadillac	1C-4	32D/08	Agnico-Eagle Ltd	El Coco	Au-Ag-Zn-Cu	S(3:2058)
23	Cadillac	1C-4	32D/08	Agnico-Eagle Ltd	Sphinx	Au-Ag-Zn-Cu	S(4:1515)
24	Cadillac	1C-4	32D/08	Agnico-Eagle Ltd	Bruce	Au-Ag-Cu-Zn	S(2:861)
25	Cavelier	1C-3	32F/12	Globex Mining Enterprise	Cavelier	Au-Cu	GpA
26	Chaste	1C-1	32F/04	Cambior, Aurizon	mine Géant Dormant	Au-Ag	S(237:44636)
27	Chaste	1C-1	32F/04	D. Cyr et P. Larivière	Coigny	Au-Cu-Zn-Ni	S(1:175)
28	Comtois	1C-1	32F/03	Exploration Maude Lake	Comtois	Au	T, S(4:450)
29	Courville	1C-1	32C/06	G. Gagnon, T. Coyle	Hydrocour	Au-Cu-Zn-Ag	E, G, Gp
30	Dalquier	1C-1	32D/09	D. Cyr	Harricana Est	Au-Cu	Pr
31	Dasserat	1C-4	32D/03	Ressources Dasserat inc.	El-Coco	Au-Cu	PP, Mag, T
32	Dasserat	1C-4	32D/03	Ressources Dasserat inc.	Lac Fortune Ouest	Au-Cu	PP, Mag
33	Des Meloizes	1C-1	32D/14	L. Lehoux	Normet	Au-Ag-Cu-Zn	Pr
34	Desmeloizes	1C-1	32D/14	P. Gosselin, F. Turcotte	Gosselin 2000	Au-Ag-Cu-Zn	T, G, Gp
35	Despinassy	1C-1	32C/11	Cameco Gold inc. /Major General Res.	Despinassy	Au	S(27:10136), Mag, PP
36	Dieppe	1C-3	32E/11	Mines Aurizon	Casa Berardi Exploration	Au	S(2:1346)
37	Disson	1C-1	32D/15	M. Campbell	Campbell	Au	E, G
38	Dolomieu, Lescure	1C-1	32G/11-14	M. Bouchard	Andy A-B	Au-Cu-Zn	T, Pr
39	Druillettes, Gradis	1C-1	32G/06-07	P. Costa	River Gold	Au	Pr
40	Dubuisson	1C-5	32C/04	SOQUEM INC.	Sylvie	Au	PP
41	Dubuisson	1C-5	32C/04	Mines McWatters	mine Kiena	Au	S(16:7953), Gc(ro)
42	Dubuisson	1C-5	32C/04, 32D/01	J. Stock	Kiena West	Au	E
43	Duparquet	1C-4	32D/11	SOQUEM INC./ GéoNova Expl.	Pitt Gold	Au	PP, Pr

TABLE 1C-1 - (cont'd)

N°	TOWNSHIP	FIG.	NTS	COMPANY	PROJECTS	SUBSTANCE	WORK[1]
44	Duplessis	1C-1	32F/08	Hudson Bay	Duplessis A	Au	
45	Duprat, Beauchatel	1C-4	32D/06	Exploration Azimut	Flavrian	Au-Cu-Zn	G, Pr, T, E
46	Fabre	1C-1	31M/03	J. Belhumeur	L'Africain	Au-Ag-Cu-Ni	Mag, G, E, Pr
47	**Fenelon**	**1C-3**	**32E/15**	**International Taurus Resources, Fairstar**	**Fenelon**	**Au**	**S(24:992)**
48	Figuery	1C-1	32D/08	Mentor Exploration and Development	Figuery	Au-Ag-Cu-Zn	S(4:1602)
49	Gaboury	1C-1	31M/06	L. Hallé	Castor	Au-Pt-Pd-Ni	T, E
50	Gamache, Rohault	1C-1	32G/07-08	L. Girard	Christina 2000	Au-Cu-Zn	Pr
51	Gand	1C-1	32G/12	SOQUEM INC.	Gandex	Au	G, E
52	Gand	1C-1	32G/12	Explorations Minières du Nord/SOQUEM INC.	Lac Shortt	Au-Cu	
53	Guercheville	1C-1	32G/11	Sudbury Contact Mines ltd/Boréale Expl.	Fenton	Au	Mag, PP, G, Pr
54	Guercheville	1C-1	32G/11	ARCA Exploration, Exploration Boréale	Fenton-Centre	Au-Ag-Zn-Cu	S(x:456)
55	Guillet	1C-1	31M/07	P. Gervais	Belleterre	Au-Ag	T, E, G
56	Hallé	1C-1	31M/07	D. R. Cutting, N. St-Onge	Loken Lake	Au	T
57	Joannes	1C-4	32D/02	Ressources Minières Coleraine	Davidson	Au	S(3:423), PP
58	La Dauversière	1C-1	32G/09	J. A. MacLeod	La Dauversière	Au	Pr
59	La Dauversière	1C-1	32G/09	A. Liboiron	La Dauversière	Au	T, E
60	La Dauversière, Charron	1C-1	32G/09	R. Simard	Lac Dufrennes	Au-Cu-Zn	T, G, E
61	La Martinière, La Peltrie, Lanoullier	1C-3	32L/02-03	International Taurus Resources	Martinière D	Au	S(12:1938)
62	Launay	1C-1	32D/10	Ressources Melkior	Launay	Au	Mag, TBF, Gc (h)
63	Le Tac	1C-1	32F/08	Explorations Minières du Nord/SOQUEM INC.	Le Tac	Au-Cu	
64	Lespérance	1C-1	32G/12	Explorations Minières du Nord/SOQUEM INC.	Lespérance	Au-Cu	
65	Lesueur, Boyvinet, Lespérance, Gand	1C-1	32G/12, 32F/09	SOQUEM INC., Explorations Minières du Nord	Lac Shortt	Au	S(5:1086), PP, Mag
66	Ligneris	1C-1	32D/15	Globex Mining Enterprise	Tut Gold	Au	Mag
67	Louvicourt	1C-5	32C/03	Mines Aurizon	Beacon	Au	S(5:1122)
68	Louvicourt	1C-5	32C/03	SOQUEM INC./Provenor	Rivière Marrias	Au	Mag, PP
69	Maizerets	1C-1	32E/01	Cambior	Harricana	Au-Cu-Zn	Pr
70	Malartic	1C-5	32D/01	SOQUEM INC.	Camflo N-O	Au	Mag, PP, G, Pr
71	Malartic	1C-5	32D/01	Exploration Azimut	Malartic	Au	G, T, E
72	Massicotte, Manthet, La Peltrie	1C-3	32E/14	Radisson	Lac Gignac	Au	S
73	McKenzie	1C-1	32G/16	SOQUEM INC.	Brosman	Au	S(15:3055), PP, Mag, T
74	McKenzie	1C-1	32G/16	SOQUEM INC.	Gilman	Au	PP, Mag
75	McKenzie	1C-1	32G/16	SOQUEM INC.	McKenzie	Au	PP, Mag, E
76	McKenzie	1C-1	32G/16	SOQUEM INC.	MOP-II	Au	S(3:1240), PP, Mag, T
77	McKenzie	1C-1	32G/16	SOQUEM INC.	Radar	Au	PP, Mag
78	McKenzie	1C-1	32G/16	B. Frigon	École	Au-Ag-Cu-Zn	T, E, G

TABLE 1C-1 - (cont'd)

N°	TOWNSHIP	FIG.	NTS	COMPANY	PROJECTS	SUBSTANCE	WORK(1)
80	McKenzie, Roy	1C-1	32G/16	SOQUEM INC.	Bruneau	Au	Pr
81	Montbray	1C-4	32D/06	Mentor Exploration and Development	Montbray E	Au-Ag-Cu-Zn	S(7:1478)
82	Montbray	1C-4	32D/06	Agnico-Eagle Ltd	Montbray A	Au	S(x:3525)
83	Montbray	1C-4	32D/06	Agnico-Eagle Ltd	Dumont	Au	GpA
84	Montbray	1C-4	32D/06	Ressources Strateco	Montbray	Au	PP, G, Pr
85	Montbray	1C-4	32D/05-06	C. Chouinard	Lac Floyd	Au-Cu-Zn-Ni	Pr
86	Noyelles, Le Tardif	1C-1	32F/11	SOQUEM INC./Geonova/ Freewest/Oasis	Syndicat Berthiaume-Noyelles	Au	S(4:537), Gp, Gc(h)
87	Obalski, Scott, Barlow	1C-1	32G/16	SOQUEM	David	Au	PP, Mag
88	Opémisca	1C-1	32G/14	Ouje-Bougoumou Eenuch Association	Opémisca	Au	T, E, G
89	Pascalis	1C-5	32C/04	Mines Aurizon	mine Beaufor	Au	S(9:2400), Mag, Int, Sat
90	Perron	1C-1	32E/03	Ressources Minières Coleraine	Perron	Au-Cu-Zn-Ni	S(x:4490), PP, Gc(t), DPEM
91	Pershing	1C-5	32C/03	Exploration Malartic Sud/Huntington Expl.	Croinor	Au	S(53:6000)
92	Pershing	1C-5	32C/03	Montigua Resources	Pershing	Au	S(15:3000), PP, Mag, EM, Gc(ro)
93	Pershing	1C-5	32C/02	A. Hodgson	Manitoo Gold	Au	Gp, S
94	Poularies	1C-1	32D/11	J. Stoch	Poularies Gold	Au	S
95	Quévillon, Laas	1C-1	32C/14, 32F/03	Cameco Gold inc.	Cedar Rapids	Au	S(3:1417)
96	Rouyn, Joannes	1C-4	32D/02	Cambior	Routhier	Au-Cu-Zn	PP, Mag
97	Roy	1C-1	32G/16	SOQUEM INC., Nimsken Corporation	Cummings	Au	Pr
98	Roy, Lemoine, Obalski, McKenzie	1C-1	32G/16	Ressources Campbell, SOQUEM INC.	Chibougamau	Au-Cu	E
99	Scott	1C-1	32G/15	R. Simard, R. Laforge	Ile Deschesne	Au	S, E
100	Scott	1C-1	32G/15	9034-9473 Québec inc	Scott	Ag-Cu-Au-Zn	T, E
101	Ste-Hélène	1C-3	32E/16	SOQUEM INC.	Samson	Au	S
102	Vassan	1C-5	32C/05	A. Gaulin	Alberto	Au-Cu-Ni-EGP	Mag, TBF, Gc(h), Gc(ro)
103	Vassan	1C-5	32C/04	Ressources Wesdome	Wesdome	Au	S(2:762)
104	Verneuil	1C-1	32F/02	SOQUEM INC./Ressources Normabec	Normabec	Verneuil	Au T, G
105	Courville	1C-1	32C/06	Société minière Pershimco	Courville	Au-Cu	PP, E

TABLE 1C-2 - Base metals and vanadium exploration in the Abitibi and the Pontiac subprovince in 2000.

N°	TOWNSHIP	FIG.	NTS	COMPANY	PROJECTS	SUBSTANCE	WORK[1]
P1	Baby	1C-2	31M/06	Aurora Platinum	Midrim	Cu-Ni-Pt-Pd	S(16:2500),G,T
P2	Baby/Blondeau	1C-2	31M/07	M. Fekete/F. Kiernicki	Baby Belleterre PGE	Pt-Pd	G,Gc(ro)
P3	Barraute	1C-2	32C/12	Mines Abcourt	Abcourt/Barvue	Zn-Ag	S(2:285),ET
P4	Bearn	1C-2	32D/16	T. Coyle/R. Tremblay	Bearn	Pt-Pd	Pr
P5	Beauchastel	1C-4	32D/03	Ressources Dasserat	R.M. Nickel	Ni-Cu-Pt-Pd-Au	S(3:368),G
P6	Beauchastel	1C-4	32D/03	Globex Mining/Aurogin Resources	Halliwell Mine	Cu-Zn-Au	GpA,EM
P7	Beauchastel/ Rouyn	1C-4	32D/03	Aurogin Resources/ Globex Mining	Beauchastel/ Rouyn	Cu-Zn-Au-Ag	GpA,G
P8	Beauchastel/ Rouyn	1C-4	32D/03	Noranda	Ribago JV	Cu-Zn-Au-Ag	S(3:3894),DPEM
P9	Beschefer/Bapst	1C-3	32E/15	SOQUEM INC./ Billiton Canada	Beschefer	Cu-Zn-Au-Ag	Gp
P10	Boyvinet/Gand	1C-2	32F/07	P. Berthelot/H. De Corta	Platine Desmaraisville	Cu-Ni-Pt-Pd	Gc(ro)
P11	Brouillan	1C-3	32E/15	SOQUEM INC./ Billiton Canada	B-26 Brouillan	Cu-Zn-Au-Ag	S(5:1248),DPEM
P12	*Brouillan*	*1C-3*	*32E/14*	*Billiton Canada*	*Mine Selbaie*	*Cu-Zn-Au-Ag*	*S(4:404),EM*
P13	Buteux	1C-2	32G/03	L. Desgagné	Desgagné-Buteux	Pt-Cu-Au-Zn	Pr
P14	Casa Berardi	1C-3	32E/06	Mines Cancor/Inco	Gemini	Cu-Pb-Zn-Au-Ag	S(21:8477), DPEM,Mag,PP
P15	Cavelier	1C-3	32F/12	SOQUEM INC./Ress. Metco	du Dôme	Zn-Cu-Au-Ag	S(3:675)
P16	Cavelier/Galinée	1C-3	32F/12	SOQUEM INC./Ress. Metco	Cavelier 1	Zn-Cu-Au-Ag	S(4:1055),DPEM
P17	Cléricy	1C-4	32D/07	Ressources Breakwater	Kino	Cu-Zn-Au-Ag	DPEM
P18	Delbreuil	1C-2	31M/10	Ressources Coleraine/ 9034-9473 Québec	Delbreuil	Cu-Ni-Co	Mag,Gc(s),T
P19	Destor/Poularies	1C-4	32D/10	Globex Mining/ Aurogin Resources	Lyndhurst	Cu-Zn GpA,DPEM	S(3:?),G,
P20	Ducros	1C-2	32C/11	C. Fortin/N. Fortin	Ducros	Ni-Pt-Pd-Cu-Au	Mag,EM,T
P21	Dufresnoy	1C-4	32D/07	Globex Mining	Vauze Mine	Cu-Zn	GpA
P22	*Dufresnoy*	*1C-4*	*32D/07*	*Noranda*	*Gallen*	*Cu-Zn*	*S(2:1859)*
P23	Dufresnoy	1C-4	32D/07	Ressources Breakwater	Rivière Dufresnoy	Cu-Zn-Au-Ag	S(2:635),DPEM
P24	Dufresnoy	1C-4	32D/07	Ressources Breakwater	Mine Bouchard-Hébert	Cu-Zn-Au-Ag	S(?:3034), DPEM,Gc
P25	Duplessis	1C-2	32F/07	Hudson Bay Exploration	Duplessis A, B et C	Cu-Zn	GpA,EM, Mag,G,Gc(s)
P26	Dupras/Dufresnoy	1C-4	32D/07	Noranda	Amulet	Cu-Zn-Au-Ag	S(1:1247)
P27	Fiedmont	1C-2	32C/05	Mines Abcourt	Vendôme	Cu-Zn-Au-Ag	S(3:212),ET
P28	*Galinée*	*1C-3*	*32F/12*	*Noranda*	*Mine Bell-Allard*	*Zn-Cu-Ag-Au*	*S(42:8922)*
P29	Grevet	1C-2	32F/02	M. Proulx	Lanthanides	Cu-Zn-Au-terres r.	Ev,G,Pr
P30	*Grevet*	*1C-2*	*32F/02*	*Ressources Breakwater*	*Mine Langlois*	*Zn-Cu-Au*	*S(66:14278), Gc(ro)*
P31	Grevet/Mountain	1C-2	32F/02	Ressources Metco/Cambior	Grevet B	Zn-Cu	S(18:1558)
P32	Guercheville	1C-2	32G/11	Phelps Dodge Corp. Canada	Opawica	Cu-Zn	S(1:100),G
P33	Hébécourt	1C-4	32D/11	A. Leclerc	Roquemaure	Cu-Zn-Pb-Ag	Pr
P34	Joannes/Bousquet	1C-4	32D/07	Corporation Minière Inmet	Joannes-Orion	Cu-Zn	S(8:3725),DPEM
P35	Joutel/Poirier	1C-3	32E/08	Explo-Zinc	Kistabiche-Ez	Cu-Zn-Au-Ag	PP
P36	Joutel/Poirier	1C-3	32E/08	SOQUEM INC/ Ress. Orient inc.	Joutel West	Zn-Cu-Au-Ag	ET
P37	Joutel/Poirier	1C-3	32E/08	Globex Mining	Mine Poirier	Zn-Cu	S(2:?),EM
P38	Laberge	1C-3	32E/06	Noranda	Laberge	Zn-Cu-Au	S(2:850)

TABLE 1C-2 -(cont'd)

N°	TOWNSHIP	FIG.	NTS	COMPANY	PROJECTS	SUBSTANCE	WORK
P39	La Dauversière	1C-2	32G/08	F. Tremblay/J. Perron	Route Chibougamau	Diamant	G,Gc(ro)
P40	La Dauversière Queylus	1C-2	32G/09	Teck Exploration/ /G. McCormick	PLD	Zn-Cu-Au-Ag	S(3:553)
P41	La Gauchetière Desmazures	1C-3	32E/09	South Africa Minerals /SOQUEM INC.	Caber	Zn-Cu-Ag	Gp,ET
P42	La Motte	1C-2	32D/08	Globex Mining/ Aurogin Resources	LaMotte-Bilson-Cubric	Ni-Cu-Pt-Pd	GpA,T
P43	La Morandière	1C-2	32C/12	G. Robert	Ruisseau Hamelin	Zn-Ag-Cu-Au	S(?:?),Gp,Gc(ro)
P44	La Morandière	1C-2	32C/12	R.J. Tremblay	Promenade	Cu-Zn-Pb-Ag	S(?:?),Gp,Gc(ro)
P45	La Morandière	1C-2	32C/12	T. Coyle	Lamorandière S-E	Cu-Zn-Au-Ag	S(?:?),Gp
P46	La Morandière	1C-2	32C/12	3421856 Canada	La Morandière	Cu-Zn-Ag	S(1:114),EM
P47	Landrienne	1C-2	32C/05	Corporation Minière Inmet	Landôme	Cu-Zn	S(6:5069),DPEM
P48	Lemoine	1C-2	32G/16	McKenzie Bay Resources	Lac Doré	Vanadium	
P49	Lemoine, Rinfret	1C-2	32G/16	Teck Corporation/ Loubel Exploration	Lemoine	Cu-Zn-Au-Ag	S(4:1054)
P50	Lévy	1C-2	32G-15	J. Gadoury	Levis	Zn-Cu-Au-Ag	Pr
P51	Louvicourt	1C-5	32C/03	Ressources Aur	Seismique 2D	Cu-Zn-Au	Gp
P52	Louvicourt	1C-5	32C/04	Ressources Aur/ Novicourt	Louvex	Cu-Zn-Au	S(6:2939),DPEM, Gc(ro),Gp
P53	Louvicourt	1C-5	32C/03	Ressources Aur	Bonnefond	Cu-Zn-Au	Gp
P54	Louvicourt	1C-5	32C/03	Ressources Aur	Courageous	Cu-Zn-Au	S(10:4993), DPEM,Gc(ro)
P55	Louvicourt	1C-5	32C/03	Ressources Aur	Sleepy Lake	Cu-Zn-Au	S(16:6669),DPEM, Gc(ro)
P56	Louvicourt	1C-5	32C/03	Ressources Aur	Bevcon	Cu-Zn-Au	S(4:2046), DPEM,Gc(ro)
P57	Louvicourt	1C-5	32C/03	Ressources Aur	Abitibi	Cu-Zn-Au	S(2:796), DPEM,Gc(ro)
P58	Louvicourt	1C-5	32C/03	Ressources Aur	Lugold	Cu-Zn-Au	S(5:1652), DPEM,Gc(ro)
P59	Louvicourt	1C-5	32C/03	Ressources Aur	Chimo	Cu-Zn-Au	Gp
P60	Louvicourt	1C-5	32C/03	Ressources Aur	Mainstreet	Cu-Zn-Au	S(4:2061), DPEM,Gc(ro)
P61	Lozeau	1C-2	32F/13	Ressources Aurbec	Lozeau	Cu-Zn	PP,Mag,EM,G
P62	McKenzie	1C-2	32G/16	SOQUEM INC.	Brosman	Cu	
P63	Montbray	1C-4	32D/06	Poirier-Leith	Leith A3	Cu-Zn-Au-Ag	PP,Mag,T
P64	Montbray	1C-4	32D/06	Ressources Strateco	Kanasuta	Cu-Zn-Au-Ag	G,Pr,PP
P65	Mountain	1C-2	32F/02	Ressources Metco/Cambior	Orphée	Zn-Cu	S(9:2756)
P66	Pouchot	1C-2	32F/11	Freewest Resources Canada	Ebay PGE	Pt-Pd	PP,Gc(s),T
P67	Pouchot	1C-2	32F/11	Freeman Prospecting Syndicate	Dot-Com	Pt-Pd	T
P68	Pouchot/Galinée	1C-3	32F/11	T. Coyle/M. Fekete	Bell River Complex	Pt-Pd-Rh	Pr
P69	Preissac	1C-4	32D/08	Globex Mining/ Aurogin Resources	Preissac Ni	Ni-Cu-Pt-Pd	GpA
P70	Preissac	1C-4	32D/08	Gosselin-Turcotte	Gos-Flo 2000	Cu-Zn-Au-Ag	Pr,T
P71	Quévillon/Laas	1C-2	32C/14	Cameco	Cedar Rapids	Zn-Cu-Au-Ag	S(?:?),Gp, Pr
P72	Roquemaure	1C-2	32D/11	P. Letourneur	Roquemaure Ouest	Cu-Zn-Pb-Ag	Pr
P73	Scott	1C-2	32G/15	R. Gagnon	Gustave	Zn-Cu-Au-Ag	Gc(ro)
P74	Ste-Hélène	1C-3	32E/16	SOQUEM INC/ Billiton Canada	Samson	Cu-Zn-Au-Ag	PP
P75	Trécesson/ Dalquier	1C-2	32C/12	J. Descareaux	Litho	Cu-Zn-Au-Ag	G,Gc(ro)

TABLE 1C-2 - (cont'd)

N°	TOWNSHIP	FIG.	NTS	COMPANY	PROJECTS	SUBSTANCE	WORK[1]
P76	Villebon	1C-2	31N/14	P. Ferderber	Villebon	Cu-Zn-Au-Pt	S(?:?),Gp,Gc(ro)
P77	Villemontel	1C-4	32D/08	F. Valiquette/R. Valiquette	Vautrin	Cu-Zn-Ni	Pr,Gp
P78	Secteur Rouyn	1C-4		Noranda	Camp minier Rouyn	Cu-Zn-Au-Ag	Levé sismique
P79	32C/01-02-08	1C-2		Southern Africa Minerals	Grenab	Cu-Zn-Au-Ag	Compilation
P80	Normétal/Casa Ber.	1C-2		T. Karpienski	Normétal/ Casa Berar.	Cu-Zn-Au-Ag	
P81	Secteur Joutel	1C-3		T. Karpienski	Detour/Joutel	Cu-Zn-Au-Ag	Pr
P82	Secteur Waswanipi	1C-2		T. Karpienski	Waswanipi/ Goélands	Cu-Zn-Au-Ag	Pr
P83	Laverlochère	1C-2	31M/06	Tom Exploration	Laverlochère	Cu-Zn	Gp
P84	Roy/McCorkill	1C-2	32G/16	Exploration Loubel	McRoy	Cu-Zn-Pt-Pd	Pr,Gc(h)
P85	Daniel	1C-3	32F/13	Noranda	Persévérance	Zn-Cu	S(227:56398), Gc(h),Mag,EM
P86	Guettard/ Lantagnac	1C-2	32G/14	Ressources Murgor	La Trève I- La Trève II	Cu-Ni-Pt-Pd-Au	G,T
P87	La Gauchetière	1C-3	32E/16	Noranda/Phelps Dodge	Phelps Dodge 1	Zn-Cu-Ag	ET
P88	Galinée	1C-3		Noranda	Orchan	Zn-Cu-Ag	S(2:889)
P89	Cavelier Desmazures	1C-3	32E/09	Noranda/Phelps Dodge	Phelps Dodge 2	Zn-Cu-Ag	ET
P90	Secteur Matagami	1C-3		Noranda	Exploration régionale	Zn-Cu-Ag-Au	S(8:2019),Mag, EM

1- EXPLORATION WORK LEGEND

E	Sampling	Gp	Undefined geophysical survey
EF	Feasibility or market study	GpA	Airborne geophysical survey
EM	Electromagnetic survey	Int. Sat.	Satellite image interpretation
ET	Technical evaluation study	Mag	Magnetic survey
Ev	Bulk sampling	DPEM	Drillhole pulse electromagnetic survey
G	Geoogical survey	PP	Induced polarization survey
Gc	Undefined geochemical survey	Pr	Prospecting
Gc(h)	Humus geochemical survey	S(nb:m)	Diamond drilling (number:total metres)
Gc(l)	Lake bottom geochemical survey	Sci	Reverse circulation drilling
Gc(ro)	Rock geochemical survey	T	Trenching and stripping
Gc(ru)	Stream geochemical survey	TBF	VLF electromagnetic survey
Gc(s)	Soil geochemical survey	TM	Metallurgical testing
Gc(t)	Till geochemical survey	*italic*	Underground exploration work
		☐	MRN subsidized project

1D
New Québec and Torngat Orogens, Rae Subprovince (Far North Craton) and Ungava Trough

Serge Perreault

New Québec Orogen, Rae Subprovince (Far North Craton) and Torngat Orogen 28
Magmatic Cu-Ni-Co-PGE and Cr-Ni Deposits 28
Epigenetic Cu (Au-Ag) Deposits 28
Stratiform Cu and Zn-Cu-Au-Ag±Pb Deposits in Detrital Sediments 28
Base and Precious Metals 29
Diamonds 29
Ungava Trough 29
Magmatic Cu-Ni-Co-PGE Deposits 29
Outlook 30

The New Québec (Labrador Trough) and Ungava (Ungava Trough) orogens are located in northern Québec (Figures 1D-1, 1D-2a and b). These Early Proterozoic orogenic belts are part of the Churchill Province, and they form the eastern and northern boundaries of the Superior Province Archean craton. The Rae Subprovince (Far North Craton; Figure 1D-1) is wedged between the New Québec Orogen to the west and the Torngat Orogen to the east. It is composed of Archean and Early Proterozoic rocks, and is referred to in the literature as the Rae Province (Rae), the Rae Subprovince, or the southeast Churchill Province.

In 2000, exploration expenditures in the Labrador Trough and the Rae amounted to $6.86 M ($1.89 M in 1999) for 16 projects. During the year, 51 new mining titles were recorded, including 47 mining exploration licences (PEM). There were 247 active titles, divided into 133 claims, 113 PEM, and 1 BEX. The principal commodities being sought were copper, nickel, platinum group elements, gold, zinc, and diamonds (Figure 1D-1).

During 2000, there were no off-minesite exploration expenditures in the Ungava Trough. The Société minière Raglan (a wholly-owned subsidiary of Falconbridge Ltd.) continued its work on the Raglan minesite. The latter reached its production objectives for 2000. During the year, 131 new titles were recorded, for a total of 1,235 active claims, 29 PEM, and 7 mining leases. Exploration efforts were mainly focussed on nickel, copper and platinum group elements (PGE).

New Québec Orogen, Rae Subprovince (Far North Craton) and Torngat Orogen

MAGMATIC CU-NI-CO-PGE AND CR-NI DEPOSITS

Osisko Exploration (2; Figure 1D-1), in partnership with **Virginia Gold Mines**, continued its exploration program in the northernmost part of the New Québec orogenic belt. The property is underlain by a mafic to ultramafic complex that extends over nearly 16 km. **Osisko** found ten mineral occurrences consisting of disseminated to massive sulphides. Some of these mineralized zones, located at the base of peridotite bodies in the Qarqasiaq and Tasikutaak units, reach 100 metres in length. Grab samples assayed up to 6.50 % Ni and 0.34 % Co. Average grades published by the company are as follows: 3.60 to 6.25 % Ni, 0.09 to 0.22 % Cu, and 0.18 to 0.33 % Co for three massive sulphide zones, and 0.53 to 1.18 % Ni, 0.14 to 0.40 % Cu, and 0.03 to 0.07 % Co for three disseminated sulphide zones associated with the Qarqasiaq unit. The company also reported results between 0.36 and 1.11 % Ni, between 0.28 and 0.95 % Cu, and between 0.08 and 0.18 % Co for five massive sulphide zones, and 0.28 to 0.54 % Ni, 0.22 to 0.36 % Cu and 0.03 to 0.04 % Co for disseminated zones associated with the Tasikutaak unit. This year, the partners completed six drillholes between 70 and 300 m depth for a total of 1,560 m, in order to test magnetic anomalies and/or DEEPEM geophysical conductors in two out of four mineralized peridotite and norite lobes of the Kyak mafic layered complex. Four drillholes intersected mineralized zones. One of these (PB00-03) contained disseminated sulphides over its entire length, with average grades of 0.48 % Ni and 0.18 % Cu over 321 metres. The drillhole intersected massive peridotite with occasional norite and olivine norite horizons, containing 1 to 3 % disseminated sulphides overall. Based on the interpretation of geological data by Osisko, drillhole PB00-03 intersected a subvertical olivine-rich magmatic conduit with disseminated sulphides. The feeder pipe is most likely situated in the northwest part of the Muskox lobe, and its size appears to be significant. The two companies, encouraged by the results, suggest that the property has good potential for a low-grade, high-tonnage, near-surface nickel deposit.

On the Gillet property, **Osisko Exploration** and **Coleraine Resources** (5; Figure 1D-1) carried out prospecting and sampling of a differentiated gabbro sill, hosting disseminated sulphide pods. Best values from channel samples were : 3.85 g/t Pd+Pt over 3 m on the Palladin zone.

In the Quartaq area (NTS 25D), **SOQUEM INC.** and **Cambior** (1; Figure 1D-1) completed a helicopter-borne Mag-EM survey in 1999, with the objective of identifying copper-nickel mineralization associated with mafic and ultramafic rocks. In 2000, their work included ground checks of electromagnetic anomalies and a lake sediment geochemical survey.

In the Rae, **Cambior** and the **Nunavik Mining Exploration Fund** (13; Figure 1D-1) prospected for Ni-Cu-PGE mineralization and diamonds on licence no. 1331, but they obtained only disappointing results.

EPIGENETIC CU (AU-AG) DEPOSITS

In the Kuujjuaq area, prospectors from the **Nunavik Mining Exploration Fund** (3; Figure 1D-1) discovered a Cu-Au-Ag showing associated with sheared gabbro. One of the sites sampled in 2000 yielded values of 0.85 % Cu, 15 g/t Ag, and 1.9 g/t Au, and 4.7 % Cu, 15.7 g/t Ag, and 0.4 g/t Au in grab samples, whereas a channel sample yielded 0.57 % Cu, 2.6 g/t Ag, and 0.26 g/t Au over 6 m. The massive sulphide mineralization is hosted in a sheared gabbro unit.

STRATIFORM CU AND ZN-CU-AU-AG±PB DEPOSITS IN DETRITAL SEDIMENTS

Noranda inc. (4; Figure 1D-1) completed 20 drillholes totalling 3,978 m, and carried out a gravity survey on the Kan property (optioned from Kennecott Exploration). On the property, several Zn-Cu-Au-Ag±Pb showings, including the Kan deposit, are hosted in sandy/pelitic sequences of the Baby Formation (black shales and iron formation), and in carbonate sequences of the Abner Formation. These

showings appear to be Besshi-type mineralization, a variation on the VMS theme, where the proportion of sedimentary rocks is greater than that of volcanic rocks.

The **Nunavik Mining Exploration Fund** (6; Figure 1D-1) explored marble horizons in contact with gabbros in the Lac Dunphy area (24B/04). Eleven grab samples collected in calcite-quartz-chalcopyrite veins associated with sheared gabbro yielded grades of 1 to 7.2 % Cu.

BASE AND PRECIOUS METALS

WMC Exploration (7; Figure 1D-1) has been actively exploring the area east of the Labrador Trough, along the western margin of the Rae Province, over the last two years. In the fall of 2000, the company submitted 35 applications for mining exploration licences covering a total surface area in excess of 13,000 km2. Work carried out in 2000 includeed a regional aeromagnetic survey, a follow-up of lake sediment anomalies, mapping and prospecting.

DIAMONDS

The discovery of diamonds by the company **Twin Mining Corporation** (8; Figure 1D-1), formerly Twin Gold Corporation, in the fall of 1999 generated unprecedented interest in this part of Québec's Far North region. Some 28 mining exploration licences (PEM) were granted subsequent to the first announcement by Twin Mining. In early 2000, the company reported 475 diamonds, including 80 macro-diamonds, in the Torngat 1, 2, and 3 dykes and the Torngat South dyke. Most of the diamonds were high-quality, white, transparent stones (press release dated February 2, 2000). The company conducted, between December 1999 and February 2000, an airborne magnetic survey covering a surface area of 444 km^2. This survey allowed them to trace the Torngat 1 dyke for over 22 km. It also outlined 46 lineaments, which may represent kimberlite dykes, and 63 discrete anomalies, either isolated or in clusters. The company discovered a 37-km kimberlite dyke swarm, which includes dykes Torngat 1 and Torngat 2/3. During March and April 2000, the company collected five 10-tonne bulk samples, under the supervision of MPH Consulting, from dykes Torngat 1, Torngat 2/3, the Kakivuq zone, and a dyke located 5.5 km northeast of Alluviaq Fjord (also known as Abloviak Fjord). The samples were analyzed by SRC Laboratories in Saskatoon, Saskatchewan. The results from two 10-tonne samples revealed the presence of 176 macro-diamonds, 91 % of which are larger than 1 mm. The largest diamond recovered is 3.8 mm x 3.6 mm x 3.2 mm in size. Several diamonds are gem-size, high quality, white, and transparent. In order to determine the diamond grade of the kimberlite dyke swarm more accurately, the company began a systematic sampling program along the 37-km strike length of the dyke swarm. The company also proceeded with the bulk sampling of site AD-2 on the Torngat-1 dyke, collecting three 100 to 200-tonne samples. Preliminary results indicated that the dyke AD-2 bulk sample contained several large stones, the largest being 0.685 carat (4.6 mm x 4.2 mm x 3.54 mm).

Tandem Resources and **Diamond Discoveries International** (11; Figure 1D-1) discovered diamonds in a kimberlite dyke traced over more than 5.6 km. Two samples collected 1 km apart yielded 10 diamonds, including 4 macro-diamonds. A small sample collected from a dyke about 6 km north of Abloviak Fjord contained a micro-diamond. The company also announced in early 2001 the discovery of 125 rubies in a sample, 5 % of which are large stones (over 0.50 mm in one direction). The rubies are pink to dark red. At this point, the company cannot confirm if the rubies are associated with a kimberlite dyke system, or with other geological elements. The ruby-bearing sample was collected more than 1 km west of the original diamond discovery.

Southern Africa Minerals and **Band Ore Resources** (9; Figure 1D-1) carried out Landsat imagery interpretation, a high-resolution aeromagnetic survey, soil and rock geochemistry surveys, prospecting, and caustic fusion analysis of four 80-kg samples. The partners discovered several lamprophyre and kimberlite dykes.

Dumont Nickel inc., **Marum Resources** and **International Tower Hill Mines** (10; Figure 1D-1) outlined more than 27 ultramafic dykes on their mining exploration licences in the Abloviak Fjord area. These dykes are similar in many ways to kimberlite dykes found on the Twin Mining property. Minerals observed in these dykes include olivine, phlogopite, pyrope garnet, and pyroxene. The dykes may be traced over a distance of 1 km, and reach 3 m thick in certain cases. The partners collected 50-kg samples from 25 dykes.

Trivalence Mining Corp. (15; Figure 1D-1), **CaribGold Resources** (12; Figure 1D-1), and the **Nunavik Mining Exploration Fund** (14, 16; Figure 1D-1) were actively exploring for diamonds along the eastern coast of Ungava Bay.

Ungava Trough

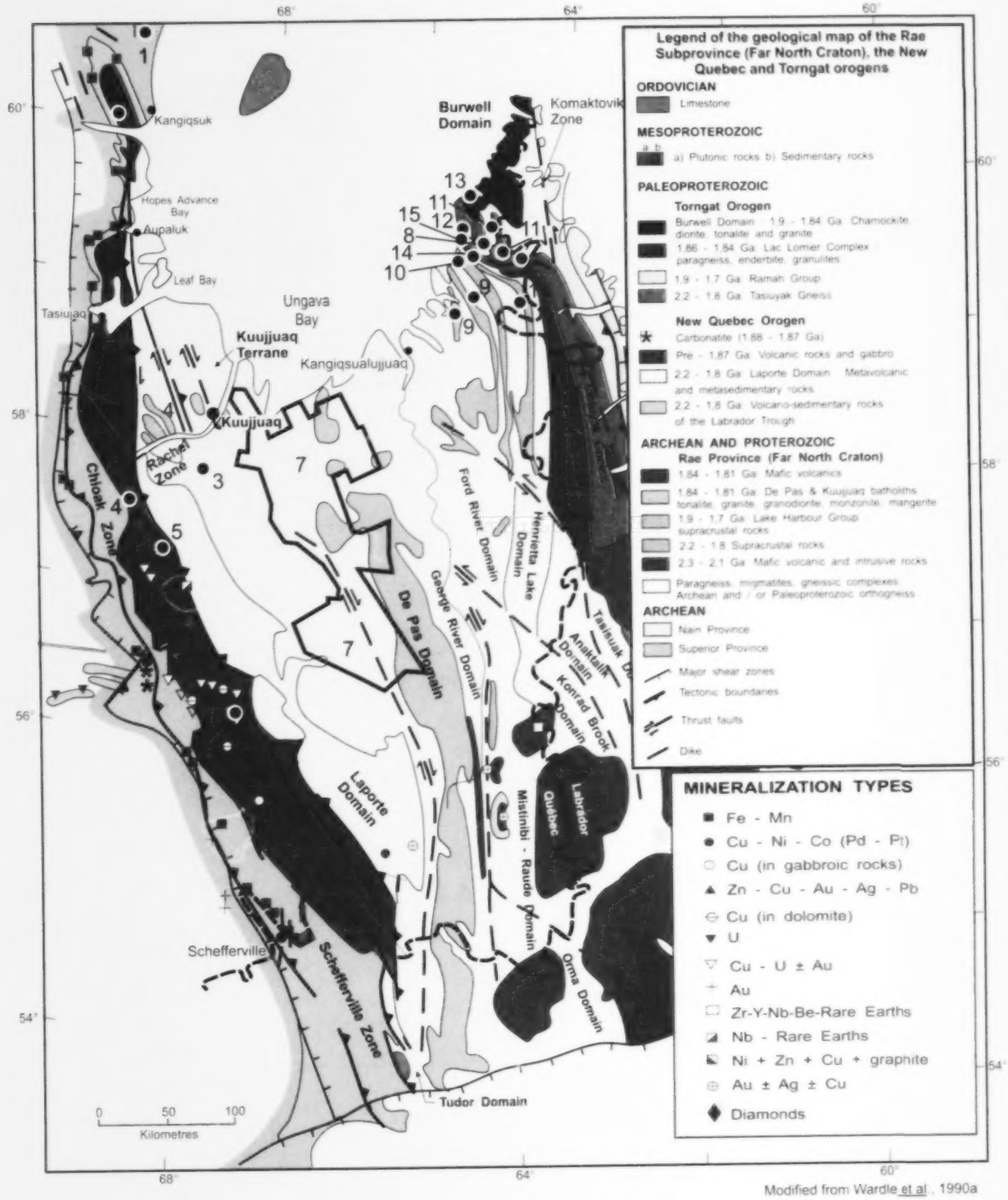
MAGMATIC CU-NI-CO-PGE DEPOSITS

After investing nearly $500 M, the **Société minière Raglan** (Figure 1D-2a and b), a wholly-owned subsidiary of **Falconbridge Ltd.**, met its production objectives for 2000 at its Raglan nickel-copper mine. The company expects to operate the mine for 25 years, with an annual production of 21,000 tonnes of nickel concentrate, 5,000 tonnes of copper concentrate and 200 tonnes of cobalt concentrate. Production costs are estimated at about $1.50 pound of nickel. The **Société minière Raglan**, is mining both as an open pit and underground, several massive sulphide lenses located at the base of ultramafic flows of the Chukotat Group. Reserves for the Raglan orebodies (including the Lac Cross, Katinik and Donaldson deposits) are estimated at 22 Mt at an average grade of 3.12 % Ni and 0.87 % Cu. The company also recovers platinum, palladium, silver, and gold as by-products.

This year, **Falconbridge Ltd.** (17; Figure 1D-2a) continued onsite exploration, including geophysical surveys and drilling. The company is focussing on the contact between the Povungnituk and Chukotat groups in the eastern part of the Ungava belt.

Outlook

In 2001, off-minesite exploration expenditures should remain stable relative to 2000, in both the New Québec and Ungava orogenic belts. Most of the activity will be focussed on the search for magmatic Ni-Cu-PGE deposits, VMS or SEDEX-type base metal deposits, and diamond exploration. In the eastern part of Ungava Bay, the Abloviak Fjord area will once again be a very active zone next summer, as several companies are planning field exploration programs for diamonds.



Modified from Wardle et al., 1990a

FIGURE ID-1 – Localization of 2000 mining exploration projects for the New Quebec and Torngat orogens and for the Rae Subprovince (Far North Craton).

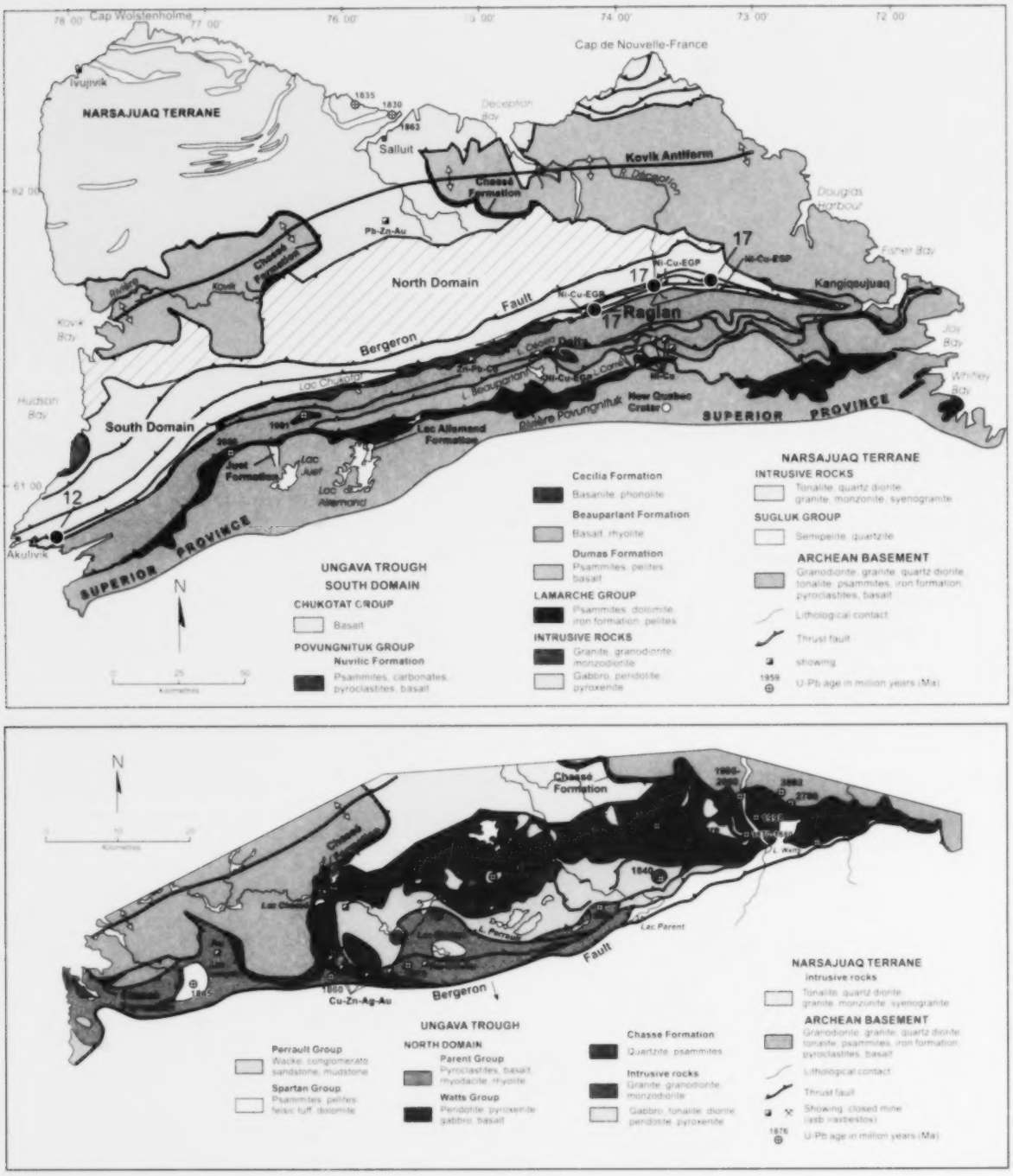


FIGURE 1D-2 a and b – Localization of 2000 mining exploration projects for the Ungava Trough (a) and the North Domain (b).

TABLE 1D-1. Mining exploration projects in the New-Quebec Orogen, in the Rae Province (Far North Craton) and the Ungava troughh in 2000.

N°	TOWNSHIP NTS	COMPANY	PROJECT	SUBSTANCE	WORK (1)
Orogène du Nouveau-Québec (voir figure 2D-1 pour l'emplacement des projets)					
1	25C	SOQUEM INC. / Cambior	Quartaq	Ni-Cu-Co	GpA, Mag
2	25D/01	Osisko Exploration / Mines d'Or Virginia	Payne Bay	Ni-Cu-Co-EGP	G, Pr, GpA, S(4:200)
3	24F	Fonds d'exploration minière du Nunavik	Kuujjuaq	Ni-Cu	Pr, Gc(ro)
4	24F/06, 24F/11	Noranda inc.	Kan	Zn-Cu	Pr, G, GC(ro), Gp, S(20:3978)
5	24F/02, 24F/07	Osisko Exploration / Ressources Coleraine	Gillet	Ni-Cu-Co-EGP	G, Pr, E
6	24B/04	Fonds d'exploration minière du Nunavik	Dunphy	Cu-Zn	Pr, Gc(ro)
	(L'emplacement du projet 1, sur la figure 1D-1, se trouve au nord de la limite de la carte)				
Province de Rae (voir figure 1D-1 pour l'emplacement des projets)					
7	24A, 24B, 24G, 24J	Western Mining Company	?	Métaux usuels et précieux	G, Pr, Gp, Mag
8	24P/06, 24P/07, 24P/11	Twin Gold	Torngat	Diamant	Pr, G, Mag, T, Ev
9	24I/13, 24I/14, 24P/03, 24P/04, 24P/06	Southern Africa Minerals / Band Ores Resources	Keglo Bay	Diamant	Pr, G, Mag, Gc(s), Gc(ro), E
10	24P/11, 24P/14	Dumont Nickel / Marum Resources	Torngat	Diamant	Pr, G, E, GpA, Mag
11	24P/07, 24P/08, 24P/11	Tandem Resources / Diamond Discoveries International	Torngat	Diamant	Pr, G, E
12	24P/11	CaribGold Resources	PEM 1480, PEM1484	Diamant	Pr, G, E
13	24P/11, 24P/14	Cambior / Fonds d'exploration minière du Nunavik	PEM 1331	Diamant Ni-Cu-Co	Pr, E, Gc(ru)
14	24P/06	Fonds d'exploration minière du Nunavik	PEM 1489	Diamant	Pr, Gc(ru)
15	24P/06	Trivalence Mining Corporation	PEM 1510	Diamant	Pr, Gc(ru)
16	24P/02	Fonds d'exploration minière du Nunavik	PEM 1491	Diamant	Pr, Gc(ru)
Fosse de l'Ungava (voir figure 1D-2 a) et b) pour l'emplacement des projets)					
17	35G/09, 35H11, 35H/12	Falconbridge	Raglan *	Ni-Cu-EGP	G, EM, DPEM, Mag, S(198 : 68 865 m)

(1) EXPLORATION WORK LEGEND

DPEM	Electromagnetic survey	Gc(s)	Soil geochemical survey	TM	Metallurgical testing
E	Sampling	Gc(t)	Till geochemical survey	*	Mine site exploration work
EF	Feasibility or market study	Gp	Undefined geophysical survey	Envir	Environmental restauration work
EM	Electromagnetic survey	GpA	Airborne geophysical survey		
ET	Technical evaluation study	Mag	Magnetic survey	☐	MRN subsidized project
Ev	Bulk sampling	PEM	Pulse electromagnetic survey		
G	Geological survey	PP	Induced polarization survey		
Gc	Undefined geochemical survey	Pr	Prospecting		
Gc(h)	Humus geochemical survey	S(nb:m)	Diamond drilling (number:total metres)		
Gc(l)	Lake bottom geochemical survey	Sci	Reverse circulation drilling		
Gc(ro)	Rock geochemical survey	T	Trenching and stripping		
Gc(ru)	Stream geochemical survey	TBF	VLF electromagnetic survey		

1E
Grenville Province

Roch Gaudreau
Serge Perreault

Magmatic and Epigenetic Ni-Cu (Co-PGE) Deposits 36
Sedimentary Exhalative and Volcanogenic Zn-Ag (Pb) and Au-Ag Deposits 36
Magmatic Vanadium-Rich Titanomagnetite and Apatite Deposits 37
Uranium Deposits 37
Iron Formation 37
Ilmenite Deposit 37
Carbonatite-Hosted Niobium Deposit 37
Outlook 38

The Grenville Province extends for more than 2 000 km along the north shore of the Saint-Lawrence River, over a width of 300 to 600 km. It is divided into three major lithotectonic entities: the Parautochthon, the Allochthonous Monocyclic belt, and the Allochthonous Polycyclic belt. The Grenville Front, a major complex structure oriented NE-SW, separates the Parautochthon from Archean rocks of the Superior Province and Early Proterozoic rocks of the Otish basin and the New Québec Orogen (Figure 1E-1). During the year 2000, Géologie Québec mapped, at a scale of 1 : 50 000, NTS sheet 22K/03 and the eastern half of 22K/04, in the Lac De La Blache area, as well as sheet 31O/03 in the Lac Dieppe area.

In 2000, about $3.78 M were invested in off-minesite exploration expenditures in the Grenville Province, which represents nearly double the amount spent in 1999 ($1.87 M). This substantial increase is attributed to the advanced state of certain exploration projects. The number of exploration projects is approximately the same as in 1999, i.e. 113 versus 117.

MAGMATIC AND EPIGENETIC NI-CU (CO-PGE) DEPOSITS

The Grenville Province contains numerous anorthositic suites and several generations of mafic dykes, plutons and complexes offering an attractive potential for magmatic and epigenetic Ni-Cu (Co-PGE) deposits.

Virginia Gold Mines and **SOQUEM INC.** continued their investigation in the northeast part of the Lac-Saint-Jean anorthositic suite in the Chutes-des-Passes area (NTS sheet 22E/15), located 140 km north of Chicoutimi (26; Figure 1E-1). In this area, the complex consists of anorthosite, leucogabbro, leucotroctolite, olivine gabbro, and pyroxenite horizons, which intrude a heterogeneous gneiss sequence. A 26-hole diamond drill program totalling 2 716 m was completed in 2000. The best intersections of the campaign on the MHY zone are : 1.15 % Ni, 0.56 % Cu, and 0.15 % Co over 4.5 m, and 0.84 % Ni, 0.50 % Cu, and 0.10 % Co over 10.15 m. In the Outaouais region, **Falconbridge Ltd.** conducted geological mapping and a ground Mag and Max-min survey to explain conductors outlined in its 1999 airborne survey on the Sainte-Marie property, in Hincks township (33; Figure 1E-1). **Osisko Exploration** and **Coleraine Mining Resources** launched a joint exploration program to identify and assess potential platinum group element targets in the Grenville Province. In the Lanaudière region, **Exploration Esbec** and **Ressources Appalaches** completed trenches and drillholes on a property in Brassard and Masson Townships (36; Figure 1E-1). A massive sulphide sample yielded 4.22 % Ni, 0.07 % Cu, 0.49 g/t Pd, and 0.25 g/t Pt.

In the Côte Nord region, the **FREM** (Fonds régional d'exploration minière de la Côte-Nord) carried out exploration work in conjunction with several prospectors in the Lac De La Blache area, where copper-nickel mineral occurrences are associated with anorthositic and gabbroic rocks emplaced in a sequence of sheared paragneisses. Prospectors **Mario, Marcel** and **Gilles Bourque** and the **FREM** (77; Figure 1E-1) discovered pentlandite-pyrrhotite mineralization in a norite along its contact with a sheared gabbro. The mineralized zone was traced over a distance of 500 m. Channel sampling on the Julie showing yielded grades of 1.33 % Ni and 0.28 % Cu over 2 m. Prospectors **Jean-Nil Cody** and **Richard Mimeault** and the **FREM** (82; Figure 1E-1) discovered disseminated sulphides (~ 10 % pyrrhotite) and graphite in leuconorite injections. Their best grades are : 0.21 % Ni, 0.35 % Cu, and 0.04 % Co. On the Manicouagan plateau, **Falconbridge Ltd.** (88; Figure 1E-1) continued its exploration program undertaken in 1999. The company is seeking Ni-Cu-PGE mineralization associated with ultramafic and mafic intrusions cross-cutting metagabbros and paragneisses in the Hart-Jaune Terrane. Further south, **Falconbridge Ltd.** acquired the Amiral property held by **Robert, Claude** and **Jean-Marie Ouellet** and the **FREM** (90; Figure 1E-1). The mineralization, composed of massive or disseminated Ni-Cu-bearing sulphides, is associated with ultramafic rocks. During 2000, the company carried out sampling and ground-checking of geophysical conductors identified in an earlier airborne survey.

Ressources Appalaches (98; Figure 1E-1) acquired the B-20 property in the fall of 2000. The property features Cu-Ni-Co mineralization associated with pyroxenite horizons, lenses, and pods along the northern margin of the Rivière-Pentecôte anorthositic suite. The best results to date are : 1.7 % Ni, 2.9 % Cu, 0.16 % Co, 0.4 g/t PGE, and 0.5 g/t Au. The company completed 1 200 m of diamond drilling. Massive sulphide mineralizations associated with pyroxenite horizons were intersected in one drillhole. The sulphide horizons are generally from less than 1 m thick to nearly 1.5 m thick.

In the Lac Manitou area, prospectors **Richard Mimeault** and **Jean-Nil Cody** and the **FREM** (105; Figure 1E-1) continued their program begun in 1999 on the Manitou Nord-Est property. Disseminated and net-textured mineralization was found in a gabbronorite along the northwest margin of the Havre-Saint-Pierre anorthositic suite. Grades of 0.55 % Cu and 0.58 % Ni were obtained over 1 m in a channel sample. A Max-min conductor over 200 m long was also outlined.

SEDIMENTARY EXHALATIVE AND VOLCANOGENIC ZN-AG (PB) AND AU-AG DEPOSITS

Southwestern Québec is mainly underlain by units of the Grenville Supergroup dominated by calcitic and dolomitic marbles, aluminous paragneisses, quartzites, and calc-silicate rocks. **Noranda inc.** and **SOQUEM INC.** have been investigating, for a few years now, the mineral potential of supracrustal sequences near Mont-Laurier, Maniwaki,

Gracefield, Bouchette, and Blue Sea Lake. Their work in 2000 was concentrated on the Ascension property, in NTS sheet 31J/10 (44; Figure 1E-1).

In the Québec City area, the Montauban Group, which hosts polymetallic deposits, consists of a pelitic sedimentary sequence associated with basic and felsic volcanic rocks. **South-Malartic Exploration** acquired properties covering the southern and western extensions of the former Muscocho gold mine in Montauban. Exploration consisted of drill-testing the eastern extension of the South zone and aimed at confirming the extent and grade of this zone towards the surface (39; Figure 1E-1). The best results from drillholes located near the former drifts of the Muscocho mine are : 3.2 g/t Au and 51 g/t Ag over 4.7 m at a depth of less than 11 m.

In the Mauricie region, the Parautochthon along the west-central margin of the Grenville Province contains remnants of Archean volcano-sedimentary belts. In recent years, several new polymetallic showings have been discovered in this sector. **Pierre Gaucher** and **Southern Africa Minerals** carried out trenching and geophysical surveys (Max-min and gravity) on a new m-scale volcanogenic sulphide horizon visible over at least 50 m in length (58; Figure 1E-1).

In the Lac Brézel area, **SOQUEM INC.** (102; Figure 1E-1) continued prospecting and geophysical work in paragneisses of the Manitou Complex. The mineralization occurs as disseminated sulphides or sulphide pods in quartz paragneisses. Grades of 1.12 % Zn and 0.5 g/t Au were reported for the Canot showing. In the Lac De La Blache area, a zinc-rich mineral occurrence, which consists of disseminated sulphides in a banded gabbro, was discovered by prospectors **Guy** and **Yolande Couturier** and the **FREM** (75; Figure 1E-1). The best values from the Johanne showing are : 0.46 % and 0.93 % Zn.

MAGMATIC VANADIUM-RICH TITANOMAGNETITE AND APATITE DEPOSITS

Northeast of Chicoutimi, **Osisko Exploration** continued work on the Buttercup vanadium property (8; Figure 1E-1). The property is located along the margin of the Lac-Saint-Jean anorthositic complex, in the Saint-Fulgence lobe. The area is underlain by layered gabbroic anorthosite, which contains vanadium-rich titanomagnetite cumulates. In 1999, **Virginia Gold Mines** and **SOQUEM INC.** carried out reconnaissance mapping of magnetic layers within the intrusive complex on their nickel-copper project in the Chutes-des-Passes area. The partners discovered several showings with grades of between 6 and 14 % P_2O_5 and between 6 and 21 % TiO_2 (26; Figure 1E-1). The 2000 diamond drill campaign for Ni-Cu mineralization identified new nelsonite zones on the property.

URANIUM DEPOSITS

The French company **COGEMA** (113; Figure 1E-1) continued its exploration program in the Wakeham basin. The company conducted a ground radiometric survey, geological mapping, petrographic studies and an important compilation of geological, geochemical and geophysical data. They are seeking uraniferous mineralization in a continental rift setting with associated alkalic volcanism and intrusions.

IRON FORMATION

The Fermont area is characterized by the presence of numerous iron deposits in the Gagnon Group. These formations are the Grenvillian metamorphic equivalents of iron formations in the Labrador Trough. Hematite and specularite from these orebodies have been mined since the 1950s by the **Québec-Cartier Mining Company** in Québec and by the **Iron Ore Company** and **Wabush Mines** in Labrador. In 2000, the **Québec-Cartier Mining Company** decided to interrupt development work on the Lac Bloom orebody. Instead, the company continued exploration work on the Lac Hessé property (85; Figure 1E-1), including a ground magnetic survey, a gravity survey, and diamond drilling. On the Lac Moiré property (86; Figure 1E-1), the company conducted ground magnetic and gravity surveys. The company's objective is to increase its iron ore reserves near the Mont Wright installations.

ILMENITE DEPOSIT

Anorthositic suites in the Côte-Nord region are renowned for their ilmenite and titaniferous magnetite deposits. Since 1950, **QIT Fer et Titane** has been mining an ilmenite deposit at the Lac Tio open pit mine near Havre-Saint-Pierre. The ilmenite deposit rates second in the world with proven reserves of 60 Mt at an average grade of 86.9 % combined iron and titanium oxide (34.2 % TiO_2, 27.5 % FeO, and 25.2 % Fe_2O_3). In 2000, **QIT Fer et Titane** (107; Figure 1E-1) completed a diamond drill program on the Grader ore deposit to determine its shape and size. The company also conducted a soil geochemistry survey on the Lac-au-Vent property (106; Figure 1E-1), about 10 km north of the Tio mine.

CARBONATITE-HOSTED NIOBIUM DEPOSIT

The Saint-Honoré carbonatite complex in the Saguenay-Lac Saint-Jean region hosts the niobium orebody mined by **Mazarin** and **Cambior**. Niobec ore consists of pyrochlore, which is subsequently converted into ferroniobium.

Following a feasibility study to examine the possible expansion of the Niobec concentrator, a first capital investment phase, estimated at 7 M$, resulted in a 20 % increase in production during the third quarter of 2000. The two companies also carried out a diamond drill program in 2000 in order to delineate new mineralized zones around the mine's periphery.

Outlook

The Grenville Province covers a vast land surface and offers a wide variety of geological settings with an excellent discovery potential for base and precious metals. In other words, it is a very attractive target for explorationists. The level of exploration activity should remain stable in the Grenville Province in 2001. The work will mainly focus on the search for nickel-copper and platinum group element deposits in the central part of the Grenville, as well as for zinc and copper in the western part.

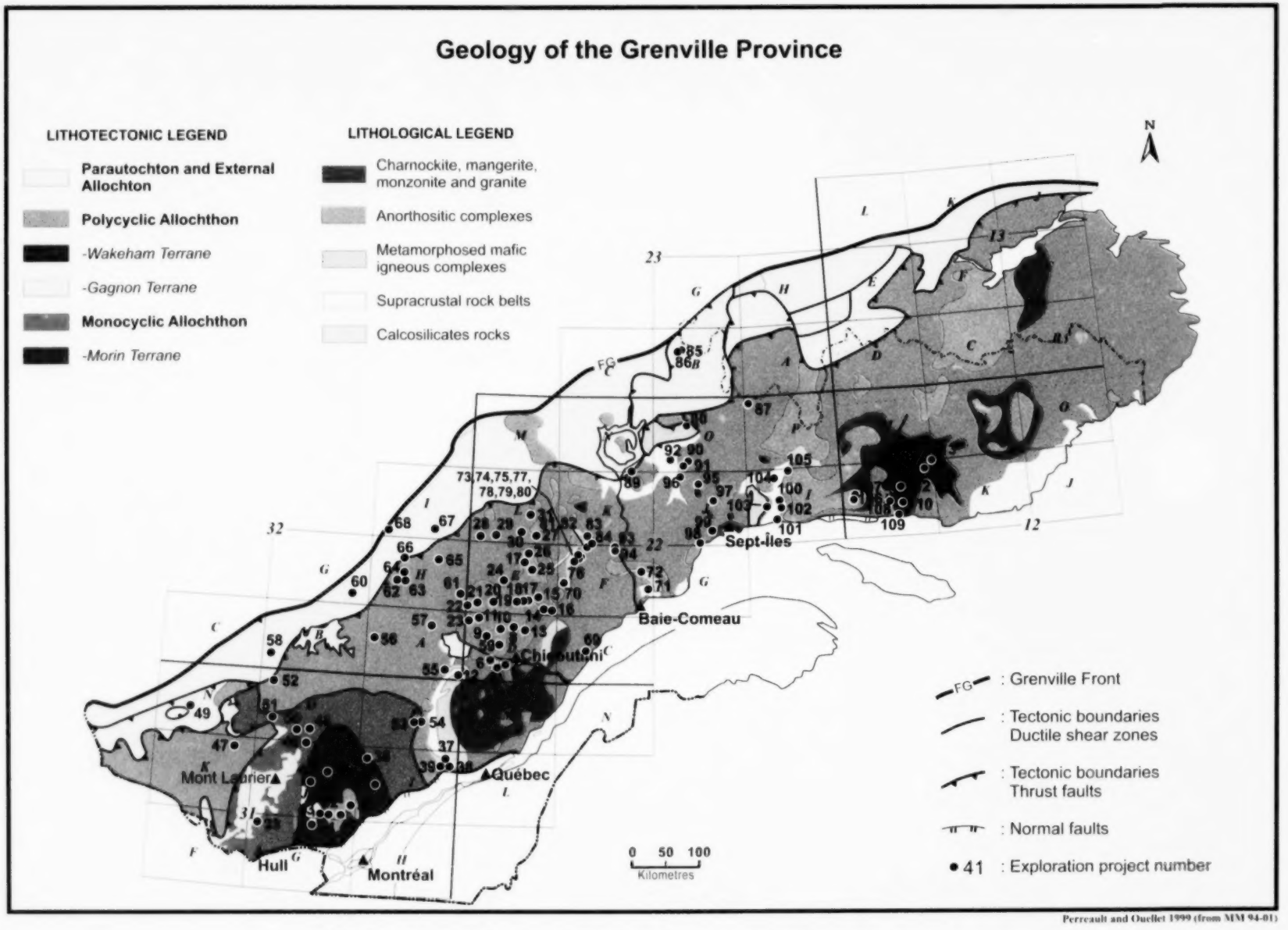


FIGURE IE-1 – Localization of 2000 mining exploration projects in the Grenville Province.

TABLE 1E.1 - Exploration work in the Grenville Province in 2000.

No	TOWNSHIP	NTS	COMPANY / PROSPECTOR	PROJECT	SUBS.	WORK [1]
1	-	22 Ouest et 32 Est	Falconbridge Ltée	Reconnaissance Grenville	Ni-Cu-Co, Pt-Pd	Pr, E, G, Gp
2	-	22 ouest, 31 nord, 32 sud-est	Mines d'Or Virginia	Reconnaissance Grenville	Cu-Ni-Co	Pr, E
3	-	22 ouest, 31 nord, 32 sud-est	SOQUEM INC. Grenville	Reconnaissance	Cu-Ni, Cu-Zn, Au	Pr, E, Gp
4	-	22 ouest, 31 nord, 32 sud-est	Osisko Exploration / Ressources minières Coleraine	Platinoides Grenville	Pt-Pd	Pr, E
5	Plessis	22D/06	Frédéric Girouard, Alain Girouard	Nickel Piukauba	Ni-Cu	Pr, E
6	Kénogami	22D/06	Lucien Girouard, Roland Dallaire, Alain Girouard	Lac Jérome	Ni-Cu	G, Pr, E
7	Kénogami	22D/06	Lucien Girouard, André Rinfret	Rivière Pikauba	Ni-Cu	G, Pr, E
8	Garreau, Chastelin, Tremblay	22D/10, 15	Osisko Exploration	Buttercup	V, Ti	Gp, E, Pr
9	Labrecque	22D/11, 22D/14	Gérard Girard	Troctolite I	Ni-Cu	Pr, E
10	Begin, Falardeau	22D/11, 22D/14	André Rinfret	Indice Clyde	Ni-Cu	Pr, E
11	Milot	22D/13	Christian Lefèvre	Milot	Ni-Cu	Pr, E
12	Malherbe, St-Hylaire, Crespieul	22D/04, 32A/01	Serge Audet	Métacom	Ni-Cu-Zn-Au	Pr, E
13	De Garreau	22D/15	Gaétan Tremblay	Vanadium phase II	V	Pr, E, Gp(Mag), T, G
14	-	22E/01	Léopold Tremblay	Zinc Mont Valin	Ni-Cu, Zn	Pr, E
15	-	22E/01	Léopold Tremblay	Lac Périgny	Ti-P	Pr, E, Gp(Mag), T, G
16	-	22E/01	Charles Boivin	Lac de l'Île Verte	Ni-Cu, P-Ti	Pr, E
17	-	22E/01, 10, 15	Ressources Arianne	APA-TI (Phases 2-3-4)		Ti-P T, E, G
18	-	22E/02	Léopold Tremblay	Nickel	Ni-Cu	G
19	-	22E/02	Charles Auguste Girard	Lac Poivre	Ti-P, Zn	Pr, E
20	-	22E/03	Gaétan Tremblay	Rivière Péribonka	Zn	Gp(Max-Min), Pr, G, E
21	Tanguay	22E/04	Lionel Lefèvre	Petit Paris	Ni-Cu	Pr, E
22	Hudon	22E/04	Paul Gagnon, Marcel St-Laurent, Léopold Tremblay	Zinc Lac de l'Ouest II	Zn	Gp(Max-Min), Pr, T, E
23	Milot	22E/05, 22D/13	René Bouchard, Michel Bouchard	Lac Long	Ni-Cu, Zn	Pr, E
24	-	22E/06	Claude Brassard	Lac Clame	Ni-Cu, Ti-P-Zn	Pr, E
25	-	22E/10	Raymond Bourgeois	Mélonèse-Vanadium	Ti-P-V	Pr, E
26	-	22E/15, 14, 10	SOQUEM INC. / Mines d'Or Virginia	Chute-des-Passes	Cu-Ni-Co, P-Ti	S(26;2716), E,Gp(EM)
27	-	22L/02	Jean-Jacques Boily, Berchmans Lavoie	Bolav 2000	Ni-Cu, Ti, Cr	Pr, E
28	-	22L/04, 22E/13, 22L/05	Alain Boily, France Tremblay	Mistassibi Camp Daniel	Ti, Zn, Au	Pr, E
29	-	22L/04, 22L/03	Jacques Simard, Jean-François Maltais	Aile Penchée	Ni-Cu-Zn-Au	Pr, E

TABLE 1E.1 - (cont'd)

No	TOWNSHIP	NTS	COMPANY / PROSPECTOR	PROJECT	SUBS.	WORK [1]
30	-	22L/02	Michel Besbiens	Nickel 2000	Ni-Cu, Ti, Cr	Pr, E
31	-	22L/07	Yves Rousseau	Villenaud	Au	Pr, E
32	-	22 ouest, 31 nord, 32 sud-est	Noranda Inc. Exploration	Reconnaissance Grenville	Zn, Cu	Pr, E, Gp
33	Hincks	31G/13	Falconbridge ltée	Sainte-Marie	Ni-Cu	Mag, Max-Min, Pr, G, E
34	Ponsonby	31G/15	Jean-Marie Pronovost	Ponsoby 2000	Cu-Zn, Au-Ag	E, G
35	Gauthier, Joliette, Peterborough, Courcelles, Houde, Kaine	31I/05, 06	Jean-Sébastien Marcil, Félis-Antoine Comeau	Angoulème	Cu-Ni-Co, Au, Pt	Pr
36	Masson	31I/13	Exploration Esbec / Ressources Appalaches	Toro-Nickel	Ni-Cu-Co, Pt-Pd	Pr, E, T, G, Gp(Mag, TBF),S(2:98)
37	Montauban	31I/16	Christian Derosier, Jean Bernard, Serge Servant	Batiscan-Sud Saint-Thomas	Au- Ag, Zn-Pb-Cu Au	Pr, E, G Pr, E, G, T
38	Grondines-Ouest	31I/16	Malartic Sud / Ressources Mirabel			
39	Montauban, Grondines ouest	31I/16	Exploration Malartic-Sud / Mirabel	Montauban	Au-Ag, Zn-Cu-Pb	Pr, E, S(6:300), T, G, Gc(s)
40	Wolfe	31J/01	Jean-Raymond Lavallée	Manitou - Sud	Cu, Ag	Pr
41	Chilton	31J/01, 31I/04	Francis Dupré, Stéphanie Dumesnil	Chilton PZN 2000	Cu-Ni, EGP Zn	E, G Pr
42	Amherst, Arundel	31J/02	Setchaisy Khamsone, Charles Durocher			
43	Amherst, Arundel	31J/02	Sylvain Chapleau	Amharun	Ni, Cu-Pb-Zn, Au	Pr
44	Nantel, Déziel, Castelnau, Boyer, Turgeon	31J/10	Noranda inc. / SOQUEM INC.	Gatineau-Ascension	Zn-Pb-Ag	T, E, G, Gc(ro), Pr
45	Turgeon	31J/11	John Charlton	Ste-Véronique PGE	Pt-Pd	Pr, E, G, Gp
46	Décarie, Chopin, Lenoir	31J/14, 31O/03	Michel Bélisle, Aimé Lachapelle	Multi-Ressources	Cu, Au-Ag	Pr
47	Hainaut, Kondiaronk, Champagne, Orléanais	31K/15, 16	André Gauthier, Martin Gauthier	Vulcain -A1	Cu-Ni, EGP	Pr
48	-	31O/03	Phil Boudrias	Casey-Mont-Laurier	Cu-Ni	E, G
49	-	31N/06	Robert J. Tremblay, Jacques Ritchot	Cabonga	Cu-Ni	E, G
50	Chopin	31O/03	Michel Bélisle, Aimé Lachapelle	Diepp -Vastel IV	Cu, W	Pr, E, T
51	-	31O/05	Philippe Allard, Richard Dupras St-Cyr	Wapus	Zn-Pb-Cu, Au-Ag	E
52		31O/13	André Liboiron	Lac Bin	Au, Cu	E, S
53	Harper	31P/07	David Fournier-Viger, Marie Fournier		Averill	Cu, W, Au, Mo Pr
54	Charest, Mailhot	31P/07	Normand Noël	Triton	Cu-Ni, EGP	E, G
55	Chabanel	32A/01	Ghislain Gaudreault, Stéphane Gaudreault	Phoscom	Ni-Cu, P	Pr, E
56	Meilleur, Lafitau, Baillargé	32A/12	Nicolas Lavoie	Wabano	Cu-Au-Ag-Zn	Pr, E
57	Girard	32A/15	Bernard Sénéchal	Sibélius III	Ni-Cu	G, T, E

TABLE 1E.1 - (cont'd)

No	TOWNSHIP	NTS	COMPANY / PROSPECTOR	PROJECT	SUBS.	WORK [1]
58	Baudin	32B/04, 05	Southern Africa Minerals Corp. / Pierre Gaucher / Explorateur Innovateur de Québec inc.	Indice Langlade	Cu-Zn, Au-Ag	T, E, Pr, Gp(Max-Min, Grav)
59	Simard	22D/11	Teck Corp. / Cambior	Niobec (BM 663)	Nb	S
60	Feuquières	32G/01	Larry Desgagné, Benoit Frigon	Feuquières	Cu-Ni	E, G, T
61	Hudon, Ménard	32H/01	Marcel St-Laurent	Zinc Lac de l'Ouest	Ni-Cu, Zn	Pr, E
62	Desautels	32H/06	9083-5596 Québec inc.	Lac Desautels	Cu-Ni	E, G, S
63	Desautels	32H/06	Bernard Sénéchal, Michael Dion, Lionel Lefèbvre	Sibélius II	Ni-Cu	Pr, E, Gp(Mag), T, G
64	Desautels, Aiguillon, Lacombe, Le Coq	32H/06, 11	Bernard Sénéchal, Michael Dion	Sibélius I	Ni-Cu, Ag	Pr, E
65	Marsolet, Lagorce, Le Noblet, Youville	32H/10	Yves Boulianne, Robert Gagnon	Mistassini	Cu-Au-Ag-Zn	Pr, E
66	Corbeil, Lacombe	32H/11, 15	Bernadette Ménard	Camp Libéral Nestaocano	Cu-Au-Ag-Zn	Pr, E
67	-	32I/02	Charles Henri Laflamme, Louise St-Pierre	Cauvet II	Ni-Cu	Pr, E
68	Duberger, Bignell, Harlay	32I/04	Roger Audet, David Gosman	Duberger	Cu-Au	Pr, E
69	-	22C/06, 22C/11	E. Desbiens, M. Savard	Bassin rivière Romaine	Cu-Ni-Zn-Au-U	Pr
70	-	22F/05, 22F/12	J.-Y. Fournier, S. Savard	Cassé	Cu, Zn, Au	Pr
71		22F/08	J. Lapierre, R. Pope	Georges Tremblay	Cu-Ni	Pr
72		22F/09	G. Collin, H. Arsenault	Blanc 2000	Cu-Ni	Pr
73	-	22F/13	J. Dionnes, R. Lanthier,FREM	La Blache 70 est	Cu-Ni	Pr
74		22F/13	P. Brisson, M. Gauthier, FREM	La Blache Bloc 22	Cu-Ni	Pr
75	-	22F/13	G. Couturier, Y. Couturier, FREM	La Blache Bloc 30	Cu, Ni	Pr
76		22F13, 22F14	C. Pépin, M. Larouche, FREM	La Blache Bloc 23	Cu, Ni	Pr
77	-	22F/14	M. Bourque, G. Bourque, M. Bourques, FREM	La Blache - Julie	Cu-Ni	Pr, T
78	-	22F/14	G. Couturier, Y. couturier	Remous	Cu-Ni	Pr
79	-	22F/14	B. Blais, R. Tremblay, FREM	La Blache 215 centre	Cu-Ni	Pr
80	-	22F/14	J. Lapierre, R. Pope, FREM	La Blache 215 Ouest	Cu-Ni	Pr
81		22F/14, 22K/03	M. Vaillancourt, M. Chênevert, FREM	La Blache 215 est	Cu-Ni	Pr
82		22F/14, 22K/03	J.-N. Cody, R. Mimeault, FREM	La Blache Bloc 37	Cu-Ni	Pr
83		22K/03	P. Brisson	Hulot	Cu-Ni	Pr
84		22K/03	A. Gauthier, M. Castilloux, FREM	La Blache 215 NE	Cu-Ni	Pr
85	Normanville	23B/14	Compagnie minière Québec Cartier	Lac Hessé	Fe	G, Gp, Mag, S(15;3424m)
86	Normanville	23B/14	Compagnie minière Québec Cartier	Lac Moiré	Fe	G, Gp, Mag
87	-	22P/13	G. Vennes	De Roy	Cu-Ni	
88	Villeray	22O/11	Falconbridge Ltée	Haut-Plateau Est	Ni-Cu-Co-EGP	G, Mag,EM
89		22N01, 22N/02	J. Fortin	Cunico	Cu-Ni	Pr

TABLE 1E.1 - (cont'd)

No	TOWNSHIP	NTS	COMPANY / PROSPECTOR	PROJECT	SUBS.	WORK [1]
90		22O/03	Falconbridge Ltee	Amiral	Ni-Cu-Co-EGP	G, GpA, Mag,EM, E
91	-	22O/03	C. Ouellet, R. Ouellet	Papillon 2	Ni-Cu-Co-EGP	Pr
92	-	22O/04, 22O/05	B. Poirier, M. Dionne	Grand Mesnil 2000	Ni-Cu	Pr
93	-	22F/15	Hector Blake	Blake-9	Cu-Ni-Co	G, T
94	-	22F/15	Ressources Appalaches	B-50	Cu-Ni-Co	G, Mag, TBF
95	-	22J/14	SOQUEM INC.	Grand Lac du Nord	Cu-Zn	Pr, G
96	-	22J/14, 22O/04	J.-M. Ouellet	Norac	Ni-Cu	Pr
97	-	22J/10	M. Vaillancourt	Asquiche Nord	Cu-Ni	Pr
98	-	22G14	Ressources Appalaches	B-20	Ni-Cu-Co	G, S(6:1200 m)
99	Leneuf	22J/02	C. Gauthier, FREM	Labrie	Cu-Ni	Pr, G, T, Gp
100	-	22I/11	M. Morissette, L. Morissette	Lac BoBo	Cu-Zn	Pr
101	Charpeney, Coopman	22I/07	A. Simard	Graines 2000	Cu-Ni	Pr
102	-	22I/11	SOQUEM INC.	Lac Brézel	Zn-Cu-Au	G, Gc(sol), Gc, T
103	-	22I/12	M. Ouellet	Lac Travers	Cu-Ni-Zn	Pr
104	-	22I/14	B. Dallaire, M. Castilloux, A. Gauthier, FREM	All-Burt-Mitch	Cu-Ni	Pr, T, E
105	-	22I/14	R. Mimeault, J.-N. Cody, FREM	Manitou Nord-Est	Cu-Ni	Pr, Gp
106	Parker, Puyjalon	12L/11	QIT Fer et Titane	Lac-au-Vent	Fe-Ti	G, Gc(sol)
107	**Parker, Puyjalon**	**12L/11**	**QIT Fer et Titane**	**Grader**	**Fe-Ti**	**G, S**
108	-	12L/05, 12L/06	S. Petitpas, M. Castilloux	Contact	Cu-Au	Pr
109	Desherbiers	12L/07	G. Gallant	Julie 2000	Cu-Au	Pr, E, Gc(sol)
110	-	12L/07	C. Cormier	Villeneuve	Cu-Au	Pr
111	-	12L/16	R. Guillemette, P. Desjardins	Arpin	Cu-Au	Pr
112	-	12L/10	A. Chênevert	Rouseau	Cu-Au	Pr
113	-	12K/13, 12L/15, 16, 12M/01, 02, 12N/04	COGEMA	Wakeham	U	Pr, G, T, Gp, Gc

1. EXPLORATION WORK LEGEND

DPEM Electromagnetic survey
E Sampling
EF Feasibility or market study
EM Electromagnetic survey
ET Technical evaluation study
Ev Bulk sampling
G Geological survey
Gc Undefined geochemical survey
Gc(h) Humus geochemical survey
Gc(l) Lake bottom geochemical survey
Gc(ro) Rock geochemical survey
Gc(ru) Stream geochemical survey
Gc(s) Soil geochemical survey
Gc(t) Till geochemical survey
Gp Undefined geophysical survey
GpA Airborne geophysical survey
Mag Magnetic survey
PEM Pulse electromagnetic survey
PP Induced polarization survey
Pr Prospecting
S(nb;m) Diamond drilling (number ; total metre)
Sci Reverse circulation drilling
T Trenching and stripping
TBF VLF electromagnetic survey
TM Metallurgical testing
bold Advanced-stage project
☐ MRN subsidized project

1F
St. Lawrence platform and Appalachia

Serge Lachance

South-west Region (Montréal-Chaudière-Appalachia) 46
Central Region (Lower St. Lawrence) 46
North-east Region (Gaspé-Magdalen-Islands) 46
Outlook 46

Mining exploration investments were $5.5 M, including financial assistance of $835,000 from the MRNQ as part of its Mining exploration assistance program and $815,000 from the MRNQ's Financial assistance program for technical-economical studies. Some 98 projects were conducted and 5,056 m of drilling were completed. For a complete list of the 98 projects, please refer to Table 1F-1.

South-west Region (Montréal-Chaudière-Appalachia)

Near Montréal, **Niocan** (22) continued development of its niobium project in the Oka Hill carbonatite Complex. The project consists of bringing to production an underground mine and of building a concentrate treatment plant to convert pyrochlore to ferroniobium on site. Apatite recovery is also included in the project. The identified mineral resources are of 14.37 Mt at 0.66 % Nb_2O_5 for the main S-60 zone, and of 5.95 Mt at 0.56 % Nb_2O_5 for the HWM-2 zone. The ore reserves (mineable with a cut-off grade of 0.50 % Nb_2O_5) for the two combined zones are estimated at 13.3 Mt at a grade of 0.63 % Nb_2O_5.

In the Thetford Mines area, **Ressources Allican** (10) has completed a technical and financial feasibility study, based on 16 drill holes totalling 1,513m. The project includes a low carbon ferrochrome smelter with an annual capacity of 20,000 metric tonnes. The smelter would be fed by imported concentrates and by subsequent exploitation of the Hall (open pit) and Reed-Bélanger (underground) chrome deposits in the Thetford Mines ophiolitic Complex. The mineral resources outlined so far are 1,018,000 t at 4.6 % Cr_2O_3 with an average grade of 0.22 g/t platinum for the Hall deposit and of 5.6 Mt at 6.78 % Cr_2O_3 for the Reed-Bélanger deposit.

On **R. Beaudoin** and **J. Ouellette** (28) Chute du Bras property, located in the Rivière des Plantes ophiolite melange, assay results of quartz and pyrite veins returned 21.9 g/t Au and numerous values between 1 and 9 g/t Au. These results confirm the gold potential of the Baie Verte-Brompton Line ophiolite complexes.

In Ware Township, **Explorateurs-Innovateurs** and its partners (39) continued evaluating the zinc potential of the Syndicat François Dussault project, in the volcano-sedimentary sequence of the St. Daniel Mélange. A recent drill hole intersected a 10m section grading 1 % Zn. The best intersections returned by the 1998 drill program were 1 m at 4.5 % Zn and 1.5 m at 6 % Zn.

Central Region (Lower St. Lawrence)

Appalaches Resources and **SOQUEM INC** (47) continued the evaluation of the St. Guy copper property (Squatec project). The property comprises a series of red bed copper showings with results of 0.1 to 8.8 % Cu locally in red (hematitized) and green sandstones and conglomerates of the Robitaille Formation.

North-east Region (Gaspé-Magdalen-Islands)

Sandstones and mudstones of the Garin Formation of the Honorat Group underlie the Robidoux (92) property, where **Appalaches Resources** initially discovered mineralized quartz blocks with visible gold. Following this, trenching programs located no less than 30 gold-bearing zones in a network of quartz veins and faults. On one of these structures, two drill holes intersected mineralized zones containing visible gold in quartz veins. Drill hole 99-02 intersected 6 m grading 3.1 g/t Au and 4.1 g/t Ag , including a 1 m section grading 12.5 g/t Au and 7.5 g/t Ag. Drill hole 99-01 intersected a 4.17 m mineralized zone in which a 1.26 m section returned 1.1 g/t Au and 61.0 g/t Ag.

On the **Mid-Patapédia** (88) property, optioned from **Noranda inc**, **Appalaches Resources** worked on a hydro-thermal alteration zone hosting the Mid-Patapédia deposit. The mineral resources identified on the deposit have in the past been estimated at 4 Mt at 0.25 % Cu and 5 g/t Ag. Grab samples (1999 work) returned up to 49 g/t Au, 325 g/t Ag, 5 % Sb, 2 % Zn, 0.30 % Cu and more than 1 % Pb. Hole 99-01 drilled in the north part of the mineralized zone intersected a 48.6 m section with values of 0.27 % Cu, 17.1 g/t Ag and 0.3 g/t Au and another 16.7 m section with grades of 0.48 % Cu, 12.7 g/t Ag and 0.2 g/t Au.

SOQUEM INC(87), in partnership **with Noranda inc**, continued exploration work on the Vallières property in Lesseps Township (3 drill holes totalling 1,384m). The company were searching for porphyry copper and skarn deposits in the carbonaceous rocks of the Chaleurs Group and of the Calcaires Supérieurs of the Gaspé Group.

Outlook

The level of exploration activity in 2000 should equal the level in 1999. Development of the **Niocan** (ferroniobium) and **Ressources Allican** (ferrochrome) projects will continue. The likelihood of the renewal of the Mining Exploration Assistance Program, which terminates in March 2000, should maintain grass roots exploration.

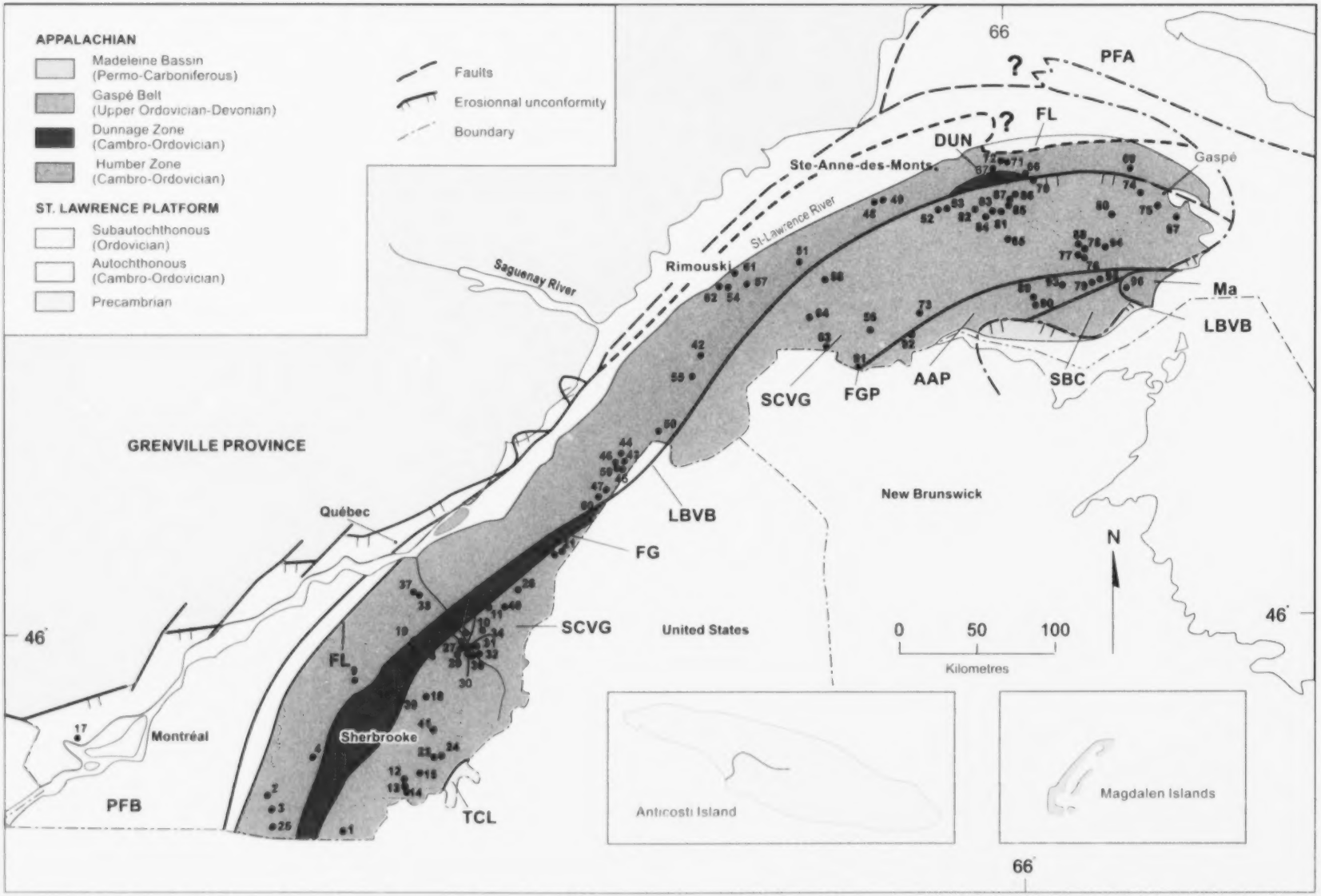


FIGURE IF-1 – Location of exploration work in 2000, total of 97 projects (no. 1 to 97).
Abbreviations: **AAP**: Aroostook-Percé anticlinorium; **DUN**: Dunnage zone; **FGP**: Grand Pabos fault; **FL**: Logan fault; **FG**: Guadeloupe fault; **LBVB**: Baie Verte-Brompton line; **Ma**: Maquereau-Mictaw window; **PFA**: Anticosti platform; **PFB**: St. Lawrence Lowlands platform; **SBC**: Baie des Chaleurs synclinorium; **SCVG**: Connecticut Valley-Gaspé synclinorium; **TCL**: Chain Lakes terrane.

TABLE 1F-1 - Exploration work over the St. Lawrence and the Appalachia territory in 2000 (see figure 1F-1)

NO	TOWNSHIP (SEIGNIORY)	NTS	COMPANY/ INDIVIDUAL	PROJECT	SUBSTANCE	WORK(1)
SOUTH-WEST REGION (MONTREAL - CHAUDIÈRE - APPALACHIA)						
1	Barford	21E/04	J. Ouellette	Saint-Herménégilde 2000	Cu-Au-Bi-Ag-Zn	G, Pr, Mag, EM, T, E, Gc(ro)
2	Bolton	31H/08	B. Brassard	Newbert-Bolton	Au	G, Pr, T, E, Gc(ro)
3	Bolton	31H/01	FEMECA	Bolton	Au-Cu	G, Pr, Mag, Em, E, Gc(ro), S(1:100)
4	Brompton	31H/09	R. Beaudette	Saint-Denis	Au-Cu-Ag	G, Pr, E, Gc(ro) (s)
5	Broughton	21L/03	B. Brassard	Newbert-Broughton	Au-Ag-Cu-Zn	G, Pr, E, Gc(ro) (s)
6	Broughton	21L/03	J. Audet-Dable	Palmer-Bernstein	Cu, Au, Ag, Zn, Pb	G, Pr, EM, E, Gc(ro)
7	Coleraine	21L/03	Ressources Allican inc.	**Hall (Propriété Ress. Min. Coleraine inc.)**	Cr, Pt	G, Pr, E, T, Mag, EM, PP, Grav
8	Coleraine	21L/03	Ressources Allican inc.	**Reed-Bélanger (Propriété Mines Cancor inc.)**	Cr	G
9	Coleraine, Irlande, Wolfestown, Thetford et Broughton	21L/03	Ressources Allican inc.	Alibert/Newbert/ Broughton	Au-Ag	G, Pr, E
10	Cranbourne	21L/07	P. Gaucher	Beauce	Au-Cu-Zn-Ni-Pt-Pb	G, Pr, EM, E, Gc(ro)
11	Cranbourne, Ware, Frampton, Standon, Roux, Rolette, Tring	21L/02-07-09	G. Duguay	Zinc-Beauceville II	Zn-Cu-Au-Ag	G, Pr, EM, E, Gc(ro)
12	Ditton	21E/06	C. Royer	L'Étoile d'Or	Au-Ag-Cu-Zn-Pb-Bi	G, Pr, T, Gc(ro)
13	Ditton	21E/06	R. Beaudoin	Bella-Victoria	Au-Ag-Cu-Pb-Zn	G, Pr, Mag, EM, E, Gc(ro) (s)
14	Ditton	21E/06-10	FEMECA	Lac Mégantic	Au-Cu-Zn-W	G, Pr, E, Gc(ro)
15	Ditton, Marston et Chesham	21E/06-07-10-11	FEMECA	Val-Racine	Au-Cu-Zn	G, Pr, E, Gc(ro)
16	Garthby	21E/14	Ressources Allican inc.	Proter-7	Cr-Cu-Au	G, Pr, E
17	(Lac-des-deux-Montagnes)	31G/09-08	Niocan inc.	**Niocan**	Nb	EF, ET, TM
18	Lambton	21E/14	J.-P. Thomassin	Lambton	Au-Cu-Pb-Zn	G, Pr, E, Gc(ro) (s)
19	Leeds	21L/06	B. Brassard	Newbert-Leeds	Au-Ag-Cu-Pb-Zn	G, Pr, E, Gc(ro) (s)
20	Leeds	21L/06	G. L'Heureux	Marval-Regan	Cu	G, Pr, EM, E, Gc(ro)
21	Leverrier	21K/13	FEMECA	L'Islet	Au-Cu-Zn	G, Pr, E, Gc(ro)
22	Leverrier et Talon	21L/09-16, 21K/13	G. Cuerrier	Saint-Adalbert	Au-cu-Ni	G, Pr, EM, E, Gc(ro)
23	Marston	21E/16	M. Paquet	Allaire	Au-Cu-Zn-Pb-Ag-W	G, Pr, Mag, EM, Gc(ro)
24	Marston	21E/11	M. Bilodeau	Lac Monty	Au-Cu-Zn	G, Pr, E, Gc(ro)
25	Potton	31H/01	R. Beaudette	Mansonville	Au-Cu-Pb-Zn	G, Pr, E, Gc(ro)
26	Roux	21L/09	P. Ratté	Etchemin	Pb-Zn-Co	G, Pr, EM, E, Gc(ro)
27	(Saint-François)	21L/02	R. Beaudoin	Chute-du-Bras	Au-Ag-Pt-Pd	G, Pr, Mag, E, Gc(ro) (s), S(1:100)
28	(Saint-François)	21L/02	R. Grondin	Rivière Saint-Victor	Au-Pt-Pd-Ag	G, Pr, Mag, EM, E, Gc(ro) (s)
29	(Saint-François)	21L/02	J. Ouellette	Du Moulin 2000	Au-Cu-Pb-Zn	E, S(1:100)
30	(Saint-François)	21L/02	R. Mainville	Rapides-du-Diable	Au	G, Pr, E, Gc(ro), S(1:100)
31	(Saint-François)	21L/02-07	R. Grondin	Fraser	Au	G, Pr, E, Gc(ro)
32	(Saint-François)	21L/02	R. Mainville	Saint-Simon	Au	G, Pr, E, Gc(s)
33	(Saint-François)	21L/02	R. Fecteau	Saint-François	Au-Cu-Zn-Ag	G, Pr, E, Gc(ro)
34	(Saint-François)	21L/02	R. Grondin	Beauceville 2000	Au	G, Pr, EM, E, Gc(ro)
35	(Saint-François)	21L/07	L. Fecteau	Saint-Joseph	Au	G, Pr, EM, E, Gc(ro)
36	(Saint-François)	21L/02	R. Beaudoin	Des Meules	Au-Ag	G, Pr, Mag, EM, E, Gc(ro) (s)
37	(Saint-Gilles)	21L/06	C. Vachon	Millénium	Au-Cu-Pb-Zn	G, Pr, E, Gc(ro)
38	(Saint-Gilles)	21L/06	K. Langlois	Saint-Sylvestre	Mz-Cu-Pb-Zn	G, Pr, Mag, E, Gc(ro)

TABLE 1F-1 - (cont'd)

NO	TOWNSHIP (SEIGNIORY)	NTS	COMPANY/ INDIVIDUAL	PROJECT	SUBSTANCE	WORK(1)
39	Stratford	21E/14	S. Pomerleau	SP-2000	Cu-Zn	G, Pr, E, Gc(ro)
40	Ware	21L/08	E. Gaucher (Ex-In)	Syndicat Dussault	Zn-Cu	Pr, EM, E
41	Whitton et Winslow	21E/10-11-14-15	L. Boulé	Whitton	Au	G, Pr, EM, E, Gc(ro) (s) (ml)
CENTRAL REGION (LOWER St-LAWRENCE)						
42	Bédard	21N/15	Ressources Appalaches inc.	Transfiguration	Cu	G, Pr, E, S(4:400)
43	Chabot	21N/06	FEMBSL, J. Guillot et R. Tourigny	Saint-Athanase	Au	G, Gc(s), S(3:132)
44	Chabot	21N/06	FEMBSL, J. Guillot et R. Tourigny	Roland	Au	G
45	Chabot et Painchaud	21N/06	FEMBSL	Rivière Noire	Au	G, Pr
46	Chabot et Painchaud	21N/06	R. Tourigny	Tournant 2000	Au-Ag-Cu	Pr
47	Chapais	21N/04	J. Lévesque	Lac de l'Est	Cu-Pb-Au	Pr
48	Cherbourg	22B/14	L. Leclerc	Cherbourg	Cu-Pb-Zn	Pr
49	Cherbourg	22B/14	A. T. Leblanc	Cherbourg	Au-Cu-Pb-Zn	Pr
50	Estcourt et Cabano	21N/06-10-11	FEMBSL	Rivière Bleue	Au-Cu-Co	G, Pr
51	Fleuriau, Kempt, Macnider, Matane, Neigette, (Lepage) et Tessier	22B/11-12 et 22C/08	FEMBSL	Faille de Neigette	Cu-Zn-Pb	G, Pr
52	Joffre et Faribault	22B/15-16	FEMBSL	Mont Coleman 2000	Cu-Co	G, Pr
53	Joffre et Faribault	22B/15-16	FEMBSL	Shickshock-Sud	Cu	G, Pr, T, E
54	Macpès	22C/08-07	R. Dubé	Saint-Léon	Cu-Pb-Zn	Pr
55	(Madawaska-01)	21N/15	SOQUEM INC. et Ressources Appalaches inc.	SQUATEC (Bloc Marquis)	Cu	G, PP, T, E, S(3:578)
56	Milnikek	22B/03	FEMBSL	Milnikek	Au	G, Pr
57	Neigette	22C/08	A. Turcotte	2000-02	Cu-Pb-Zn	Pr
58	Nemtayé	22B/05	R. Turcotte	Lotis	Cu-Zn	Pr
59	Painchaud et Chabot	21N/06	J. Guillot	Orignal	Au-Ag-Cu	Pr
60	Painchaud, Chapais et Ixworth	21N/03-04	FEMBSL	Kamouraska	Au	Pr, Gc(ru)
61	(Rimouski)	22C/08	H. Rioux	HER	Pb-Zn-Ag-Au	G, Pr
62	(Rimouski)	22C/07	T. Turcotte	Rivière Rimouski	Cu-Au-Zn	Pr
63	Rimouski 205	22B/04	J.-Y. Lévesque	Patapédia	Cu-Pb-Zn	Pr
64	Rimouski 204 et 303 et Matapédia 201 et 301	22B/04-05 et 22C/01	FEMBSL	Lac Mistigougèche	Cu-Zn-Pb	G, Pr
NORTH-EAST REGION (GASPÉ - MAGDELEN-ISLANDS)						
65	Baldwin et Clarke	22B/09	G. Therrien et O. Robinson	Barytine	Ba-Ag-Pb-Zn	G, Pr, T, E
66	Boisbuisson	22H/04	FRAPMGIM et D. Lepage	Lac des Pics 2000	Cu-Au-Pb-Sb-Ag	G, Pr, T, Gc(ro)
67	Boisbuisson	22G/01	FRAPMGIM	Mines Madeleine	Cu-Ag	E
68	Boisbuisson 2 et Christie	2G/01 (	A. Gauthier	Valmont Propriété Mine Candego)	Au-Ag-Pb-Zn	G
69	De Beaujeu	22H/02	G. Cabot et J. Caron	Ruisseau Logan	Zn	Pr
70	Deslandes, Boisbuisson et Larivière	22A/13	M. et Y. Chouinard	Lac Cassivi Est	Cu-Ag	Pr, E, Gc(ru)

TABLE 1F-1 - (cont'd)

NO	TOWNSHIP (SEIGNIORY)	NTS	COMPANY/ INDIVIDUAL	PROJECT	SUBSTANCE	WORK(1)
71	Duchesnay	22H/04	G. et B. Gagné	Lac Cristal 2000	Au	G, Pr, T, E
72	Duchesnay	22H/04	A. et M.-L. Leclerc	Entre Deux Lacs	Zn	Pr, E
73	Fauvel	22B/07	B. Boulanger	Fauvel 2000	Au	Pr, E
74	Galt	22A/15	G. Cabot et J. Caron	Galt-II	Pb-Zn-Ba	G, Pr, T, E, Gc(s)
75	Gaspésie Est	22A/09-10-14, 15, 16, 22H/02-03	FRAPMGIM et Terrenex Acquisition Corp	Pb-Zn-Hydrocarbures(Phase I)	Pb-Zn	G, Pr, E, Gc(ro)
76	Guégen	22A/06	G. Therrien	Guégen - Volcanique	Cu	Pr,E
77	Guégen	22A/06	O. Robinson	Odilon - Guégen	Cu	Pr, E
78	Guégen et Mourier	22A/06	L. Rehel et Y. Morin	Guégen Mourier	Cu	Pr
79	Honorat	22A/06	Ressources Appalaches inc.	Garin	Cu	G, Pr, E
80	Laforce et Sirois	22A/05	J. B. Beaudin et L. Leblanc	Lac Dubé	Cu-Pb-Zn	Pr, E
81	Lemieux	22B/16	FRAPMGIM et V. Côté	Mines d'Agates du Mont Lyall	Au-Ag	G, Pr, E, Gc(ro) (ru) (s)
82	Lemieux	22B/16	G. Pelletier	Lemieux	Au-Zn	Pr, E
83	Lemieux	22B/16	FRAPMGIM	Compilation du Dôme Lemieux	Cu-Pb-Zn-Au-Ag	G
84	Lemieux et Richard	22B/16	O. Robinson et G. Therrien	Brandy-Extension	Cu-Zn-Pb-Au-Ag	G, Pr, Mag, EM, T, E
85	Lesseps	22A/13	SOQUEM INC. et Noranda inc.	Vallières	Cu	G, E, S(2:786)
86	Lesseps	22A/13	SOQUEM INC.	Sullipek Nord-Barter (Option Forages Major)	Cu	G, E, S(1:401)
87	Lesseps	22A/13	Société d'exploration Minière Ste-Anne enr.	Sullipek Est	Cu	G, Pr, E
88	Mourier et Vondenvelden	22A/12	P. Grenier	Gros Maurier	Cu-Mo	Pr
89	New Richmond	22A/05	F. Bernard	Le Pré	Au	Pr
90	New Richmond	22A/04-05	Mines Cascapédia inc.	New Richmond No. 1	Sb-Au-Ag	Pr, T, E
91	Patapédia	210/14	Ressources Appalaches inc.	Mid-Patapédia	Au	G, Pr, E
92	Ristigouche	22B/02	Ressources Appalaches inc.	Ristigouche	Au	G, Pr, E
93	Robidoux et Reboul	22A/05-06	Ressources Appalaches inc.	Robidoux	Au	G, Pr, E, Gc(s), T, S(6: 500)
94	Vondenvelden	22A/11	J. B. Beaudin et L. Leblanc	Triangle d'argent	Cu-Ag	G, Pr, T, E
95	Weir et Honorat	22A/06	Scorpio Mining Corporation	Lac Arsenault	Au-Ag-Pb-Zn	G, Pr, Mag, EM, T, E, Gc(s)
96	Weir, Randin, Newport et Port-Daniel	22A/06-07	SOQUEM INC.	Ruisseau des Pins	Cu	G, PP, T, E
97	York	22A/09-10	Kimpar Mining Co.	Indice Cunning-Gault	Pb-Zn-Ag	T

1. EXPLORATION WORK LEGEND

DPEM	Down-hole Pulse electromagnetic survey	Gc(ml)	Heavy mineral geochemical survey	PP	Induced polarization survey
E	Sampling	Gc(ro)	Rock geochemical survey	Pr	Prospecting
EF	Feasibility and/or market study	Gc(ru)	Stream geochemical survey	S(nb:m)	Diamond drilling (number : total metres)
EM	Electromagnetic survey	Gc(s)	Soil geochemical survey	Sci	Reverse circulation drilling
ET	Technical evaluation study	Gc(t)	Till geochemical survey	T	Trenching and stripping
Ev	Bulk sampling	Gp	Undefined geophysical survey	TBF	VLF electromagnetic survey
G	Geological survey	GpA	Airborne geophysical survey	TM	Metallurgical testing
Gc	Undefined geochemical survey	Grav	Gravimetric survey	*	Mine site exploration work
Gc(h)	Humus geochemical survey	Mag	Magnetic survey	gras	Advanced-stage project
Gc(l)	Lake bottom geochemical survey	PEM	Pulse electromagnetic survey	☐	MRN subsidized project

Construction materials, industrial minerals and peat moss

Yves Bellemare
Pierre Buteau
Henri-Louis Jacob

Building material 52
Production 52
Exploration 52
Industrial Minerals 52
Production 52
Exploration 53
Peat moss 54

Building material

PRODUCTION

In 2000, 51 quarries of dimension stone, including dolomitic and calcitic marble and tile slate, were in production. The Rivière-à-Pierre region (NTS map sheets 31I/16 and 31P/01) is still the most important mining camp for dimension stone, with nine quarries. The St. Nazaire area (NTS 22D/12), with 5 quarries, and the St. Alexis-des-Monts region (NTS 31I/06), with 3 quarries, also showed intense activity.

During the year, 3 new quarries were brought into production. In Taché township, **Granicor** pursued the development of a biotite leucogabbronorite massif similar to the Black Cambrian type. Positive results from the work begun in the autumn of 1999 enabled the company to begin production (38, figure II, annex). Because of the emphasis put on the Taché township quarry, the company did not pursue the development of the Aube Rouge property in Dalmas township. **Les Pierres Mitchell** began mining a second quarry in the Labelle region (5, figure II, annex), following the application for a mining lease (BEX 330). A quartzofeldspathic paragneiss used to make blocks for landscaping and construction is extracted from this site. Finally, **Les Pierres du Nord** mined a quartzite with green muscovite from a quarry in Campeau township (2, figure II, annex). This quartzite is used to produce decorative pebbles and is a constituant in the production of decorative stones.

Granicor announced that it has acquired the exclusive rights to commercialize the Stoney Creek quarry, located in Brandford, Connecticut. The Lac Saguay factory, which used to belong to **Les Pierres Saguay** company, was purchased by **Carrara Marble**, which intends to explore for dimension stone in the Mont Laurier area.

EXPLORATION

As of November 20, 2000, more than 850 active titles (PRS) were registered to explore for building material. More than half of these were registered in 2000, although some of them covered areas that were occupied by old titles in the past. More than 200 active PRS are located in the St. Marc-du-Lac-Long area (NTS 21N/06, 21N/07 and 21N/10, figure 2.1). These permits were requested for slate destined for roofing tiles. The majority of the other exploration projects for building material are located in the Grenville province. They are centered mainly in the Saguenay - Lac-Saint-Jean and the Rivière-à-Pierre regions.

Through the years, the Saguenay - Lac-Saint-Jean area remains prominent in building material exploration, especially for dimension stone. More than 300 active titles are found in NTS 22D, 22E, 32A, and 32H. Exploration is mainly focussed on green granites of the charnockite suite and rocks belonging to the Lac-Saint-Jean anorthosite massif. More than 55 active PRS are found in the Rivière-à-Pierre area. Work is directed at finding dimension stone from the Rivière-à-Pierre plutonic suite in NTS 31I/16, 31P/01, and 31P/08.

Geological mapping in 1999, led by Suzie Nantel of the Ministère des Ressources naturelles, located an area near Volvic and du Débordement lakes (NTS 31J/15) with a distinct potential for dimension stone. The discovery of a brownish-red and greenish-grey farsundite in the Volvic pluton caught the attention of companies and individuals, and 17 PRS applications were submitted for permits in this sector.

Exploration titles (PRS) for building material for 9 projects were renewed in 2000. Results for projects 5 and 7 (table 2.1) led to either the definition of new reserves or the opening of a quarry that had been in operation in 1999.

The location of the various exploration projects carried out in 2000 for building material is illustrated on figure 2.2 and the details are given in table 2.2. **A. Lacroix et Fils** continued to work on the Rivière-aux-Rats project (site 26), in La Trappe township, and confirmed the potential for red, reddish-pink, and brown varieties of a foliated granite. Following the request for 7 additional exploration permits (PRS), the company submitted an application for 2 mining leases (BEX 351 and 352). The company's La Marmite project (site 16), in Bois township, was the site of stripping and sampling. **Granite Péribonka** continued work on the Grizzly property (site 19) after obtaining a mining lease (BEX 353). The company also carried out sampling on the Jogues township property (site 35). **Firstake Capital** acquired Jean-Guy Belley's property (site 34) in the Bras Jacob River area and plans to quarry the stromatolitic dolomite in 2001. **Gérard Houle** obtained a mining lease (BEX 355) for the Beauchêne Lake property (site 7) to extract a quartzite with green muscovite. **Granite Yoguy** undertook a sampling program on a blackish-grey quartz diorite on the Lac Lemoine property in Charest Township (site 14).

Industrial Minerals

PRODUCTION

In 2000, the industrial minerals sector counted 26 mines or quarries in operation. Industrial minerals produced in Québec include asbestos (3 mines), high-purity limestone and dolomite (6 quarries), silica (9 quarries), titanium minerals, graphite flakes, ground mica, specularite, talc, block steatite, and wollastonite (one mine or one quarry each). A brief description of each industrial mineral operation appears in Table III and in Figure II (Appendix).

Preliminary data indicates that in 2000, the total value of industrial mineral shipments amounted to $771.8 M, compared to $828.2 M in 1999. The value of asbestos, titanium dioxide, and rock salt shipments decreased slightly, whereas shipments of talc and mica remained stable, and those of graphite, silica, and ilmenite recorded slight increases.

Highlights for the year 2000 include the acquisition by **Graymont** of assets of the **Cogeneuf** group, including the Calco limestone quarry in Saint-Marc-des-Carrières. **Graymont**, through its Québec-based subsidiary Graybecalc, already operates limestone quarries and lime production facilities in Joliette, Bedford and Marbleton. The company also announced an investment of $16 M at its Bedford installations to double its production capacity of quicklime. This work, scheduled for completion in 2001, will increase the plant's annual production capacity to over 440 kt of quicklime.

Several developments occurred in the silica industry, namely the inauguration by **Béton Provincial** of a new silica quarry in Larivière township in the Gaspésie region, located midway between Anse-Pleureuse and Murdochville The quarry will supply siliceous flux to the Gaspé copper smelter in Murdochville. Two important transactions also took place. The first concerns the acquisition by the Ontario company **Stake Technology Ltd.** of Témisca inc. assets, a silica sand producer from Saint-Bruno-de-Guigues. The second concerns an agreement concluded between **Baskatong Quartz inc.** and **SOQUEM INC.** to create a limited partnership by the name of **Sitec**. The latter now operates the silica quarry at Petit Lac Malbaie, held by **Silicium de Bécancour inc.**, as well as a new processing plant which will produce silica blocks, for the silicon metal and ferrosilicon industries, and various silica sand products.

Noranda Magnesium announced the commencement of magnesium production at its Magnola plant in Danville, and the shipment of samples to potential clients for testing. The company expects to begin commercial production of magnesium in 2001. The Magnola plant, with a production capacity of about 60 000 tonnes per year, uses a technological process developed by **Noranda** to produce magnesium from serpentine tailings derived from the JM Asbestos mine in Asbestos.

Finally, **Orleans Resources inc.** closed its wollastonite processing plant, located in Saint-Ludger-de-Milot in the Lac-Saint-Jean region, in July. The plant, which had reopened at the end of January, produced about 1 000 tonnes of concentrate.

EXPLORATION

A total of 34 exploration projects covering about 15 different commodities (rocks or minerals, or both) were reported in 2000 (Figure 2.2 and Table 2.3). Nearly 75 % of these projects consisted of grassroots prospecting and sampling, which was accomplished, for the most part, within the framework of the assistance program for prospectors, or through regional mining funds.

Among the more advanced exploration projects, the Lac Indicateur magnesite orebody, located about 300 km north of Chibougamau, was drilled by **SOQUEM INC.** (project no. 47). Twelve drillholes totalling 475 metres were completed in order to decipher the local stratigraphy of the Péribonka Group, as well as to determine the size and grade of the magnesite orebody. According to their results, the magnesite orebody is between 400 and 600 m wide and can be traced over at least 800 m in length; it may reach 60 m thick locally. The best grades exceed 42 % MgO.

Stratmin Graphite inc. carried out two drilling programs on its mining lease during the year 2000 (project no. 60). Some 30 holes, totalling 2 000 metres, were drilled. Their objective was twofold: 1- to confirm the extensions of currently producing zones, and 2- to delineate new ore zones parallel to the main zone. This work forms part of an ongoing strategy aimed at maintaining or increasing the mine's reserves.

Work programs were also carried out in Awantjish township near the town of La Rédemption, in order to develop limestone deposits (projects no. 72 and 73). The most advanced project is operated by the **Coop Chaux du Bas-Saint-Laurent**, which plans to open a limestone quarry in 2001, to supply agricultural lime to farmers in the Bas-Saint-Laurent and Gaspésie regions. Twelve shallow drillholes totalling about 30 m were completed in two areas in order to test the thickness and continuity of high-grade limestone horizons.

Ressources Arianne, as well as **Virginia Gold Mines** and **SOQUEM INC.**, continued their exploration programs on titanium and apatite mineralization in the Lac-à-Paul area, in the north part of the Lac-Saint-Jean anorthositic suite (projects no. 53 and 54). Their work focussed on Fe-Ti-P oxide-rich facies within the anorthositic suite, which had been previously outlined by MRN mapping in the Lac-à-Paul area. According to preliminary surface sampling, the enriched facies contain 15-30 % TiO_2 in the form of ilmenite and 10-25 % apatite.

High-purity silica remained in strong demand with a total of 6 projects reported for the year 2000. Most of these projects consisted of simple stripping and sampling of quartz veins, which turned out to be either too small or too impure to justify more advanced work.

Four advanced development projects were under way in 2000, with on-going market studies, metallurgical tests or feasibility studies. These projects were headed by: **Raymor Resources**, targeting lithium production from spodumene to be mined from the La Motte lithium deposit in the Abitibi region (project no. 45); **Niocan inc.** who delineated an important niobium ore deposit (15 Mt grading 0.66 % Nb_2O_5) on the Oka project (no. 64), where the company plans to produce ferroniobium; **Robex Resources**, which intends to begin production at the Upton barite ore deposit, where proven reserves are 950 000 tonnes of ore grading 46.5 % $BaSO_4$ and 1.9 % Zn (project no. 67); **Allican Resources**, with a project (no. 71) to open a ferrochrome operation in the Thetford Mines area, which would be supplied in part by ore extracted from chromite deposits in Coleraine township.

Peat moss

In 2000, 22 peat moss producers worked some 40 peat bogs in Quebec, mainly in the Lower St. Lawrence, Côte-Nord, and Saguenay - Lac-Saint-Jean areas. Expeditions for 1999 were 10 479 924 bags of 170 dm3, for a total value of $48.4 M. Preliminary data for 2000 indicate a slight decrease to about 10 464 000 bags, for a total value of $49 M.

The 2000 production period began later than usual, at the end of June, but inventory objectives were nonetheless reached in July and August. The year also saw Québec demonstrate its know-how to the rest of the world. QUÉBEC 2000, the most important international meeting ever on wetlands, was held in Québec City between August 6 and 12. Nearly 2200 participants from 84 countries gathered together to discuss wetland management. Aside from the many oral presentations, researchers and producers from Québec led 7 of 30 fieldtrips organized for the participants. The Association des Producteurs de Tourbe du Québec (APTQ) used the occasion to launch a remarkable promotional brochure, produced with the financial support of the Ministère des Ressources naturelles and the help of many of its employees (Brochure and CD-ROM available via the APTQ's WEB site : www.icrdl.net/aptq).

Shigawake Organics Ltd.'s compost production from the Baie des Chaleurs site reached 250 000 bags (30 litres) in 1999 and production for 2000 should be significantly higher. **Tourbière Berger inc.** undertook a major exploration campaign on the St. Lawrence's north shore, between Pentecôte River and Baie-Comeau. **Exportations Daniel Sage inc.** began production of its deposit in the Port-Cartier area. **Fafard et Frères** carried out significant modernization of their installations at Saint-Bonaventure. The company also began production at the Saint-Valère deposit, located west of Victoriaville. **Les tourbes M.L.** completed the construction of a new composting plant on the St-Charles de Bellechasse site in order to diversify their production which was previously centered on peat moss.

The final shutdown, in August, of the **Johnson and Johnson** factory in Desbiens launched a vast rehabilitation project of the Sainte-Marguerite peat-bog. It is the first large-scale rehabilitation project in Québec and aims at returning the site to its original condition, where peat moss will grow anew. **Tourbières Blocs Dorés** obtained 5 exploration permits (PRS) on peat-bogs located between Senneterre and Val d'Or. Work to obtain authorization certificates from the Ministère de l'Environnement has been carried out on the Champneuf deposit.

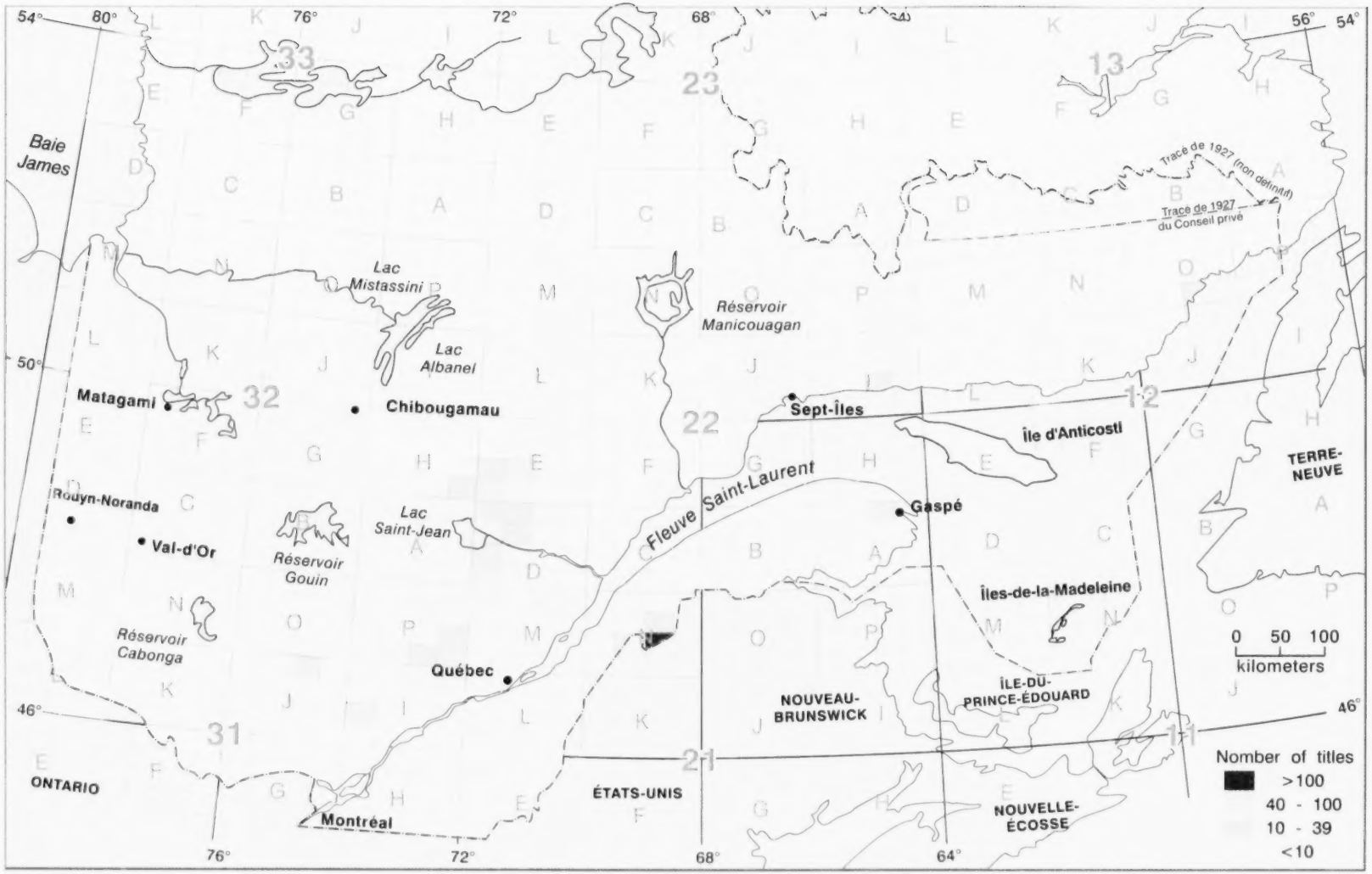


FIGURE 2.1 – Active title distribution (PRS) for building material, as of November 20, 2000.

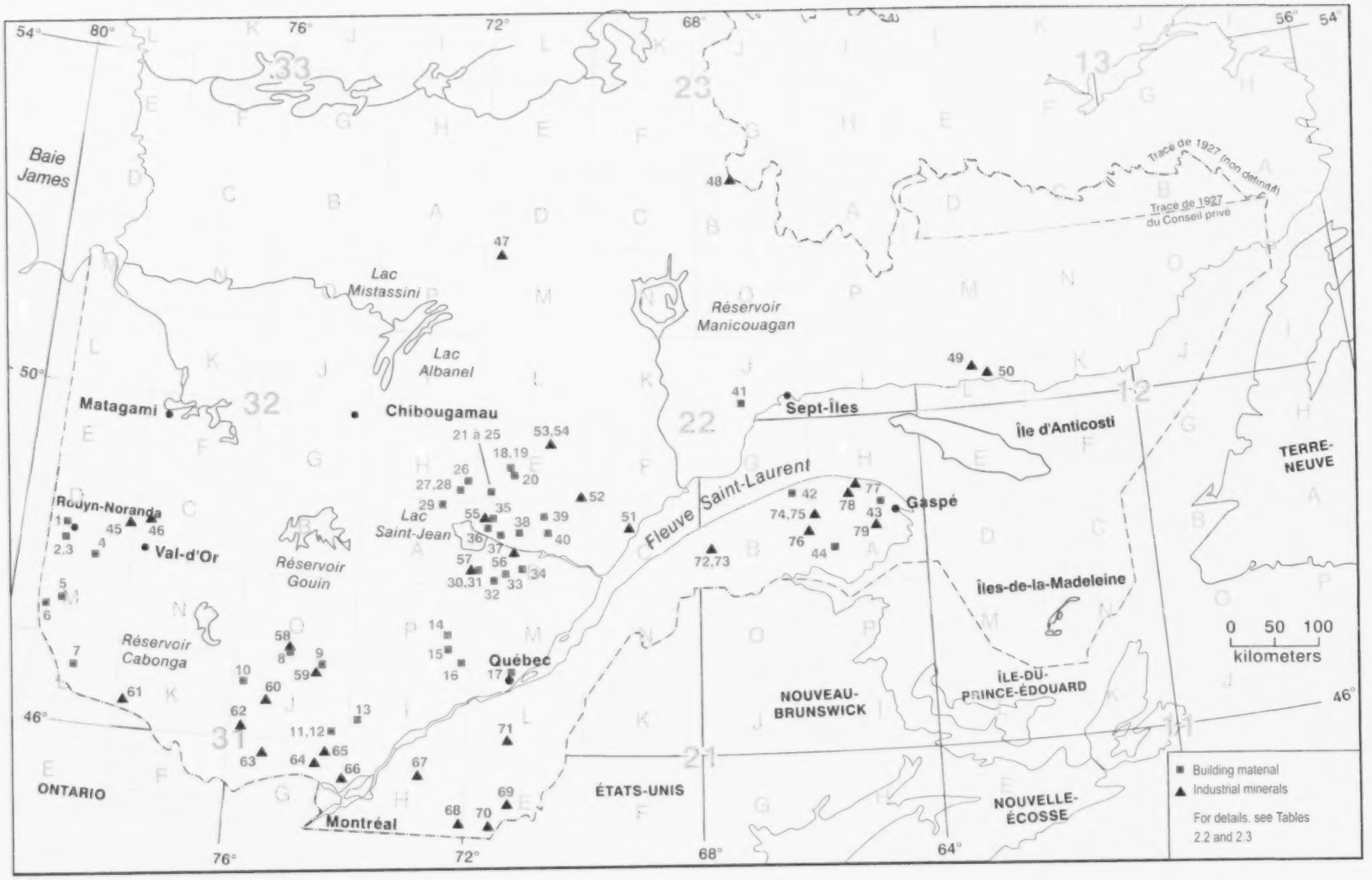


FIGURE 2.2 – Location of exploration projects in Québec in 2000. Building material and industrial minerals.

TABLE 2.1 List of renewed titles in 2000 for building material

Project	NTS	PRS	Holder	GM Number	*	Details
1	21E13	3631, 4105	Carrière D.G.	-	33 (1998)	Décapage
2	21N07	3888-3889	Glendyne	57855		Ardoise, cartographie et sondages
				58117	39 (1999)	
3	21N13	2980, 3116, 4132	2329 1677 Québec	58210	30 (1998)	Échantillonnage et test de polissage
4	22A11	4080	Vital Arsenault	58149	47 (1998)	Calcaire fossilifère, décapage et échantillonnage
5	22D05	3770-3773	Pauline Godin-Cloutier	58090	26 (1999)	Mangérite quartzifère, échantillonnage
6	22E04	3067	2329 1677 Québec	58208	20 (1998)	Farsundite, échantillonnage
7	22E06	3844, 3846-3847	Granite Péribonka et Jean-Claude Montminy	58211, 58212,58213	18 (1998)	Variété Brun Mystique, décapage, échantillonnage et test de polissage
8	22I07	2243	Carrières Norgranit		44 (1998)	Magpie ouest, syénite, décapage, sondages et test de polissage
9	31M06	3855	Warren Jason	58217	N.C.	Syénite orangé, granulat décoratif

* Refer to project number in Gaudreau *et al.*, 2000, p. 77-78 (1999) or in Gaudreau *et al.*, 1999, p. 71-72 (1998) (N. C. : unquote)

TABLE 2.2 Exploration work in Quebec in 2000 for building material (see figure 2.2.)

SITE	NTS	TITLE*	HOLDER	USE**	TYPE OF WORK***	DETAILS
1	32D06	3799	Warren Jason	GD	EF	Projet Aldermac, tonalite porphyrique
2	32D03	5508	Hélène Sallafranque	PD, GD	E, Gc, S	Diabase noire, possibilité d'utilisation des résidus dans la fabrication de tuiles à plancher
3	32D03	3448	143454 Canada	PD	G, E, Gc	Projet Granit Noir, diabase noire, à grain fin à moyen
4	31M14	3856	Warren Jason	GD	EF	Monzodiorite porphyrique, gris noirâtre, à grain grossier, demande du BEX 342
5	31M06	3855	Warren Jason	GD	EF	Syénite orangé
6	31M06	Aucun	Warren Jason	GD	EF	Granite porphyroïde, rouge brunâtre, sur le site de l'ancienne carrière de Pointe au Cèdre
7	31L10	4214, BNEP 454	Gérard Houle	GD	Pr	Quartzite à muscovite verte, demande du BEX 355
8	31O03	5117	Michel Belisle	PD	Pr, E	Granite de type Guénette, rose, à grain fin
9	31J15	4692-4695	André Liboiron	PD	G, E	Projet Maison de Pierre, farsundite porphyroïde, grise, résultat décevant
10	31J12	4530	Gérard Houle	GD	Pr, E	Projet Tem-Laur, marbre calcitique orangée
11	31J01	5311	Jean Marleau	PD	Pr, T, E, Gc	Projet Doncaster, anorthosite gris noirâtre, chatoyant
12	31J01	Aucun	Gérard Houle	PD	Pr, E, Gc	Projet Tem-Laur, anothosite mauve
13	31I05	Aucun	Gérard Houle	PD	Pr	Projet Tem-Laur, anorthosite porphyroclastique, noire, chatoyant
14	31P08	4477, BNEP 468	Granit Yoguy	PD	E, Gc	Diorite quartzifère, gris noirâtre, à grain grossier
15	31P01	4437-4440	Daniel Robitaille	PD	Pr	Gabbro, type Brun Castor
16	31P01	4865, 4886-4887	A. Lacroix et Fils	PD	T, E, Gc	Projet La Marmite, mangérite quartzifère, porphyroïde, gris verdâtre, à grain grossier, demande du BEX 349
17	21L14	Aucun	Jean-François Lavoie	PD	Pr, E	Farsundite porphyroïde, brun orangé, à grain grossier, résultat décevant
18	22E06	5658-5659	Jean-Marie Larouche	PD	E	Projet Brun des Passes, monzogabbro brun
19	22E06	3847, 4905-4907	Granite Péribonka	PD	Pr, T, E, Gc	Projet Grizzly, monzogabbro porphyroclastique, brun, chatoyant, demande du BEX 353
20	22E06	4754	Dany Lévesque	PD	E	Projet Brun Kodiak, monzogabbro porphyroclastique, brun, transfert des PRS au Groupe Polycor
21	22E04	4910, 5063-5070	Granite Péribonka	PD	Pr, E	Anorthosite granoclastique à porphyroclastique, bleue, verte et jaune, chatoyante
22	22E04	4945	François Gobeil	PD	Pr, E	Projet Ménard, diabase noire, à grain fin à moyen
23	22E04	4935-4938	Olivier Perron	PD	E	Projet Vert Menthe, granit vert
24	22E04	4404, 4419	9004-1344 Québec	PD	Pr	Type Astra, beau site
25	22E04	4210-4213, 4911-4914	Michel Bouchard	PD	Pr, E	Projet lac Long, variété Vert Cascade, granit vert foncé
26	32H01	4256, 4374, 5019-5024	A. Lacroix et Fils	PD	T, E, Gc	Projet Rivière aux Rats, granit rouge, rouge rosé et brun, demande des BEX 351 et 352.
27	32H01	4721-4728	Fonds minier du Saguenay–Lac-Saint-Jean	PD	Pr, G, E, Gc	Farsundite verte, homogène, peu de fractures

TABLE 2.2 (cont'd)

SITE	NTS	TITLE*	HOLDER	USE**	TYPE OF WORK***	DETAILS
28	32H01	4424-4425, 4720	France Tremblay	PD	E	Projet Melançon, farsundite verte
29	32A15	4262-4263	Gextrais	PD	Pr	Farsundite, type Brun Acajou
30	22D04	Aucun	Pauline et Raymond Cloutier	PD	Pr	Projet Granite Noir, résultat décevant
31	22D04	Aucun	Denise et Linda Cloutier	PD	Pr	Projet Chute Blanche, résultat décevant
32	22D04	4531-4542	Fonds minier du Saguenay–Lac-Saint-Jean	PD	E, Gc	Projet Noir Laurentide, anothosite noire à grain fin
33	22D03	4954	Gextrais	PD	Pr	Mangérite quartzifère, porphyroïde, gris verdâtre
34	22D03	4430	Firstake Capital	PD	Pr, E, T, Gc	Blocs de dolomie à stromatolite, demande du BEX 343
35	22D13	4467, 5039	Granite Péribonka	PD	Pr, E, Gc	Anorthosite noire, à grain grossier
36	22D12	Aucun	Michel Bouchard	PD	E, Gc	Projet Noir Taillon, anorthosite noire, à grain grossier
37	22D12	Aucun	A. Lacroix et Fils	PD	T, E	Anorthosite granoclastique, résultat décevant.
38	22D11	3329	Henri Boily	PD	Pr	Anorthosite chatoyante
39	22D15	5071	Solange Tremblay	GD	E, Gc	Anorthosite chatoyante, test de broyage, ancien PRS 2801
40	22D10	4562-4563	Paul Gagnon	PD	T, E	Projet Granite Le Marié, anorthosite a grain grossier, chatoyant
41	22J03	5110	Maurice Morissette	PD	Pr, E	Projet Granit Walker, mangérite foliée, gris verdâtre, à grain moyen
42	22G01	5476-5477	Poly-Vein Exploration	PC	Pr, E, Gc	Projet Marsic, grès riche en quartz, travaux à venir pour vérifier le potentiel pour la pierre concassée
43	22A15	5272-5284	Jacques Dufresne	PC, PT	Pr, E	Projet Serpentine, Formation de Lefrançois, calcaire pour empierrement de route et de quai, possibilité d'utilisation pour la pierre dimensionnelle
44	22A05	5417	Liliane Roberge	PD	E	Projet Géo-phase II, basalte aphanitique noir de la formation du Lac McKay, résultat encourageant

* PRS number, unless otherwise specified.

** GD : decorative crushed-stone; PB : building stone; PC : crushed-stone; PD : dimension-stone.

*** Pr : prospecting ; G : geological survey ; GC : rock geochemical survey or test ; E : sampling; EF : Feasibility and/or market study; S : drilling ; T : trenching or stripping.

☐ MRN subsidized project.

TABLE 2.3 Exploration work in Québec in 2000 for industrial minerals (see figure 2.2).

SITE	TOWNSHIP OR SEIGNIORY	RESPONSIBLE	PROJECT	SUBSTANCE	WORK *
45	Lamotte	Ressources Raymor	Lamotte	Lithium	S, TM, EF
46	Lacorne	Ressources Canspar/ Soquem	Aramis	Mica	G, E, S
47	SNRC 22M/13	SOQUEM INC.	Lac Indicateur	Magnésite	G, S
48	SNRC 23B/14	Paul Blackburn	Fermont	Dolomie, silice	Pr, E
49	SNRC 12L/07	Carol Cormier	Villeneuve	Staurotide	Pr, E
50	Johan-Beetz	J. M. Pronovost	Silibeetz2000	Silice	Pr, E
51	Bergeronnes	Guy Galarneau	Mica Saint-Laurent	Mica	Pr, E
52	SNRC 22E/01	Léopold Tremblay	Lac Périgny	Apatite, titane	Pr, T, E
53	SNRC 22E/10-22E/15	Ressources d'Arianne inc.	Passes Dangereuses	Apatite, titane	G, S, T, E
54	SNRC 22E/15	Mines d'Or Virginia	Lac à Paul	Apatite, titane	G, S, T, E
55	Petit et Maltais	Jacques Lebel	Prospect 4	Calcite	Pr, E
56	Kenogami	Lucien Girouard	Kenogami	Feldspath	Pr, E
57	Dequen, Dablon, Malherbe	Guy Cuerrier	Chambord	Silice	Pr, T
58	Chopin	M. Belisle	Marbre dolomitique	Dolomie	Pr, E
59	Castelnau	Jean Viger	Nantel-Grenat	Grenat	Pr, E
60	Bouthillier	Stratmin Graphite inc	Lac-des-Iles	Graphite	G, S
61	Edwards	Denis Cyr	Sillim	Sillimanite	Pr, E
62	Blake	S. Langevin et F. Bergeron	Blake	Cristaux de quartz	Pr, T,E
63	Portland	A. Lafrance	Feldspath dentaire	Feldspath	TM
64	Grenville	C. Desrosiers	Magnésite-Grenville	Magnésite	G, Gp, E
65	Grenville, Harrington Wentworth	M. Leduc et L. Langlais	CCC-Calcaire cristallin calcitique	Calcaire	Pr, E
66	Seigneurie Lac-Des-Deux-Montagnes	Niocan	Oka	Niobium, apatite, Terres-rares	EF
67	Upton	Ressources Robex	Upton	Barytine	EM
68	Stanstead	C. Royer	Fairfax	Silice	Pr, T, E
69	Newport	C. Royer	Colonie Lawrence	Silice	Pr, T, E
70	Barnstown et Hereford	J. Ouelette et J. Grenier	Averill	Staurotide	Pr, E
71	Coleraine	Ressources Allican inc	Allican-Thetford- Mines	Chromite	G, Gp, S
72	Awantjish	Coop Chaux du Bas-Saint-Laurent	Carrière Rédemption	Calcaire	G, E, S
73	Awantjish	9086-3267 Québec inc	Awantjish	Calcaire	G, S
74	Lesseps	J. M. Marin et Y. Lavoie	Calcaire Lachance	Calcaire	G, T, E
75	Lesseps	J. M. Marin et J. Y. Lavoie	Marsic	Silice	G, T, E
76	Baldwin et Clarke	G,. Therrien et O. Robinson	Barytine	Barytine	Pr, E
77	Lefrançois	J. M. Marin et J.Y. Lavoie	Calcaire Lefrançois	Calcaire	EM
78	Denoue	J.M. Marin et J. Y. Lavoie	Alumina	Argile	Pr, E
79	Power	B. St-Pierre	Calcaire Montagne Blanche	Calcaire	G, T, E

* E : sampling ; EE : environnemental study ; EF : feasibility study ; EM : market study ; ET : technical evaluation study and compilation ; Gc : soil ,rock or stream geochemical survey ;; Gp : geophysical survey ; Pr : prospecting; S : diamond drilling ; T : trenching and stripping ;TM : metallurgical testing.

☐ MRN subsidized project.

Financial Assistance for mining exploration

Pierre Marcoux
Jean Choinière

This chapter encompasses all mining exploration programs carried out in 2000 with the help of financial assistance from the Ministère des Ressources naturelles (MRN). Subsidized programs are shown in Figures 3.1 (prospector projects) and 3.2 (company projects). These projects are described in Chapters 1 and 2 of this report.

The MRN allocated a budget of $12.3 M to support mining exploration activities in Québec for the 2000-2001 fiscal year. This budget was used under the Québec Mineral Exploration Assistance Program (MEAP) and to implement an assistance program for junior exploration companies experiencing difficulties.

The MEAP underwent several modifications this year. The former Near North Program was merged with the MEAP, and a section devoted specifically to the Abitibi geological subprovince (surface exploration, deep drillholes, drifts and other advanced exploration work) was added.

The MEAP is still designed for the same clientele, namely, prospectors, mining exploration companies, regional exploration funds, and native funds.

The assistance program for junior exploration companies is a temporary measure specifically designed for companies whose head office is located in Québec, and who carry out most of their activities in Québec. To be eligible, companies must have invested a minimum of $500 000 in exploration work in Québec since 1997, and have less than $500 000 at their disposal as working capital.

As of December 31, 2000, allocated amounts were distributed as follows:

* $0.7 M to prospectors for 92 grassroots or advanced prospecting projects;

* $1.1 M to 5 regional exploration funds for 155 projects by prospectors ($0.7 M) and for in-house projects ($0.4 M);

* $5.2 M to companies for 58 surface exploration projects ($3.1 M), 27 deep drillholes ($0.5 M) and 5 advanced exploration projects ($1.6 M) in the Abitibi region;

* $4.9 M to 14 junior companies to support 22 exploration projects;

* $0.4 M to 2 native exploration funds (the Nunavik Mining Exploration Fund and the Nitassinan Innu Mining Fund).

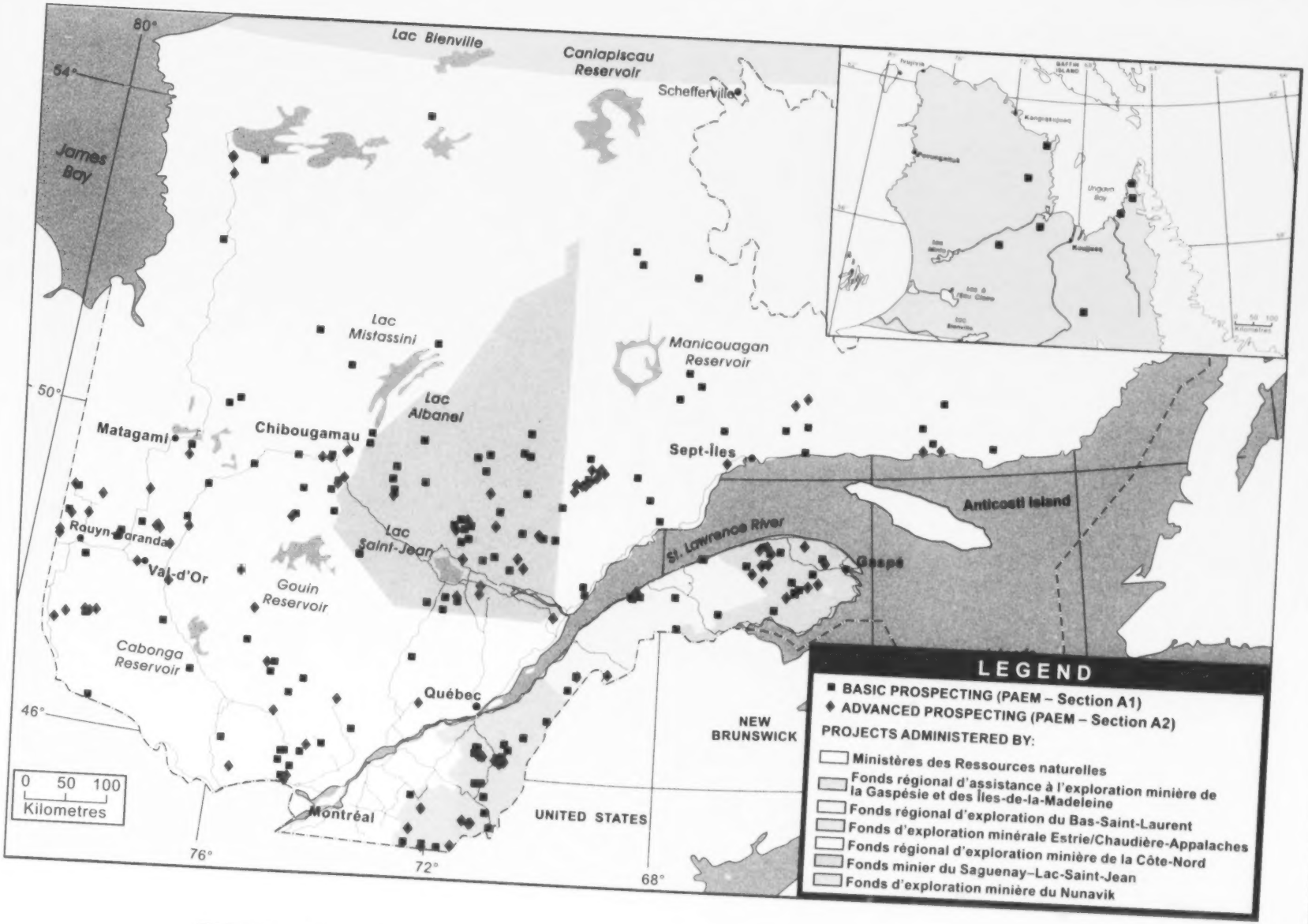


FIGURE 3.1 – Location of basic (Section A1) and advanced (Section A2) prospecting projects subsidized by the MRN in 2000.

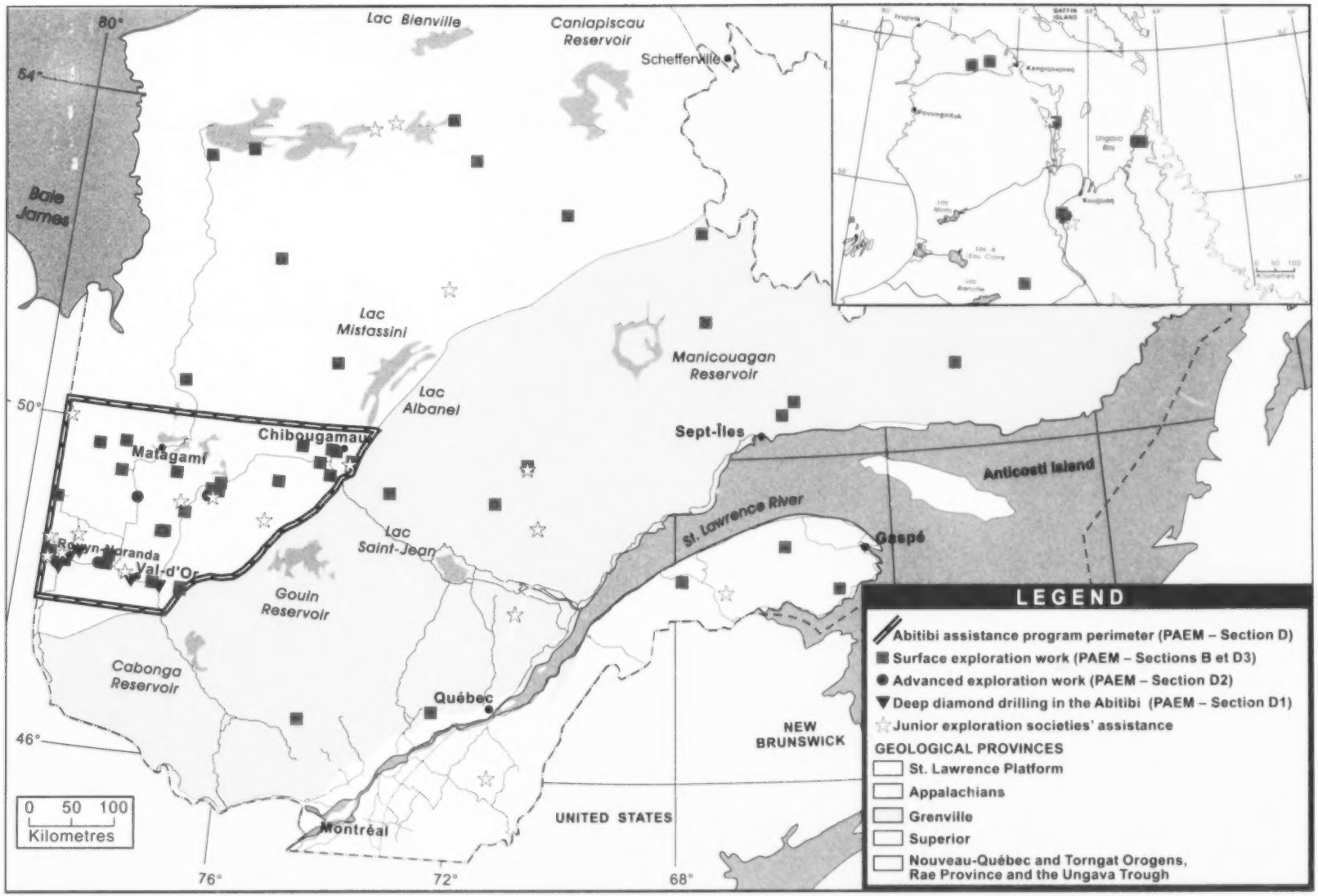


FIGURE 3.2 – Location of MRN subsidized company projects in 2000.

Localization of producing mines, architectural stone quarries and peat bogs in Québec

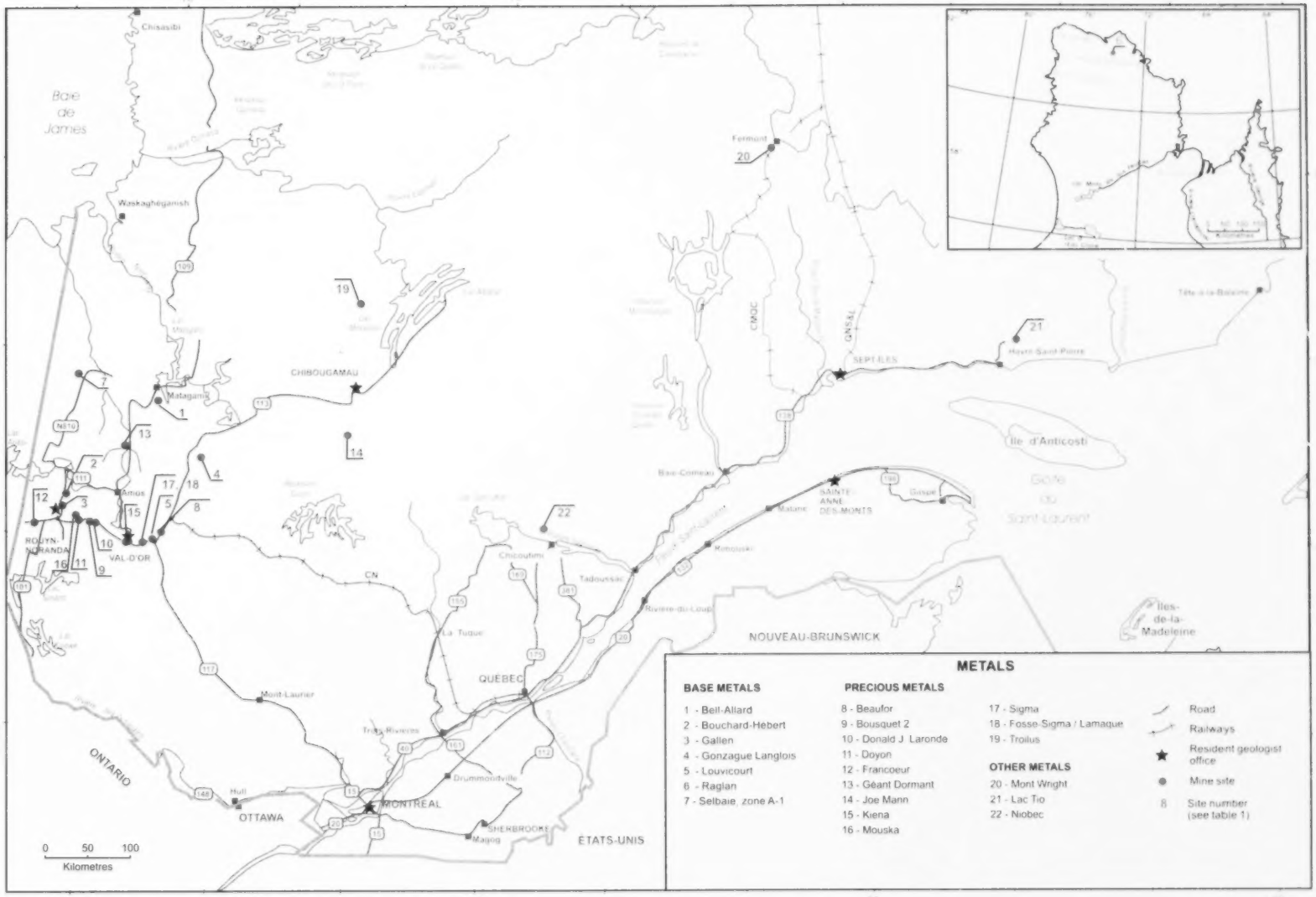


FIGURE 1 – Active mines in Québec for 2000 (metallic substances).

Table I - Production of metallic substances in Québec (see figure I).

Base metals : Cu and Zn (Ag et Au)

Site	Mine	Company	Summary description of the deposit	Ore process in 2000	Metal production in 2000	Ore processing in 2000	Reserves (at January 1st 2001)	Employees in 2000	Cumulative production	Number of years of production	Township / NTS / Administrative area/ Mining district
1	Bell-Allard	Noranda Inc. Matagami Mine	VMS-type	515 384 t at 11,79 % Zn 1,18 % Cu 33,47 g t Ag 0,61 g t Au	55 412 t Zn 5 161 t Cu 6 528 kg Ag 125 kg Au	Matagami Mine	2 909 491 t 12,35 % Zn 1,24 % Cu 37,38 g t Ag 0,563 g t Au	258	515 384 t at 11,79 % Zn 1,18 % Cu 33,47 g t Ag 0,61 g t Au	2000-20.. (1)	Galinée 32F/12 **Val d'Or**
2	Bouchard-Hébert	Cambior	Massive sulfides (PY-SP-CP) subvertical lenses in rhyolites and pyroclastics	797 214 t at 1,6 g t Au 51,1 g t Ag 0,95 % Cu 4,93 % Zn	665,9 kg Au 15 471 kg Ag 6 311 t Cu 33 834 t Zn	Bouchard-Hébert Mine	4 414 000 t at 1,1 g t Au 35,6 g t Ag 0,66 % Cu 4,87 % Zn	151	5 368 185 t at 1,6 g t Au 47,9 g t Ag 0,89 % Cu 4,48 % Zn	1995-20.. (6)	Dufresnoy 32D 07 / 08 **Rouyn-Noranda**
3	Gallen	Noranda	Brecciated VMS (PY-SP-CP) lenses in lapilli tuff forming enclave in lac Dufault pluton. Note : The cumulative production is calculated since the re-opening of the mine in July 1997.	Na	Na	Horne smelter	Na	Na	Na	1953-59, 81-85, 97-20.. (16) closed July 2000	Dufresnoy 32D 07 / 08 **Rouyn-Noranda**
4	Gonzague Langlois (Grevet)	Cambior	VMS-type in mafic and felsic lavas	310 466 t at 7,915 % Zn 0,365 % Cu 31,44 g t Ag 0,19 g t Au	27 792 t Zn 800 t Cu 3 016 kg Ag 19,06 kg Au	Gonzague Langlois mine	3 892 000 t at 10,24 % Zn 0,64 % Cu 49,29 g t Ag 0,08 g t Au	142	1 994 902 t at 6,96 % Zn 0,37 % Cu 28,61 g t Ag 0,16 g t Au	1996-20.. (5)	Grevet 32F/02 / 10 **Val-d'Or**
5	Louvicourt	Aur Resources	VMS-type associated with Val d'Or Formation, dominated by lapilli ash tuffs and exhalative chert	1 586 045 t at 3,31 % Cu 1,41 % Zn 24,65 g t Ag 0,85 g t Au	52 559 t Cu 22 398 t Zn 39 102 kg Ag 1 345 kg Au	Louvicourt Mine	5 612 745 t 3,18 % Cu 1,73 Zn 26,45 g t Ag 0,88 g t Au	280	9 549 636 t at 3,64 % Cu 1,53 % Zn 26,22 g t Ag 0,97 g t Au	1995-20.. (6)	Louvicourt 32C 04 / 08 **Val-d'Or**
6	Raglan	Falconbridge Ltd	Magmatic massive sulfides lenses at the base of ultramafic flows	936 471 t 2,94 % Ni 0,86 % Cu 0,06 % Co	23 655 t Ni 6 758 t Cu 417 t Co	Raglan Sudbury Nikkelverk	Na	350	2 356 868 t 2,99 % Ni 0,87 % Cu 0,06 % Co	1998-20.. (3)	35G 09, 35H 11 and 35H 12 **Sept-Îles**

Tableau I - Production of metallic substances in Québec (see figure I). (continued)

Base metals : Cu and Zn (Ag et Au)

Site	Mine	Company	Summary description of the deposit	Ore process in 2000	Metal production in 2000	Ore processing in 2000	Reserves (at January 1st 2001)	Employees in 2000	Cumulative production	Number of years of production	Township / NTS / Administrative area/ Mining district
7	Selbaie, Zone A-1 and store ore	Billiton Metals of Canada	Disseminated SP-PY-CP associated with network veins in a rhyodacite breccia and dacitic welded tuff	3 675 746 t at 0,42 g/t Au 31,5 g/t Ag 0,44 % Cu 1,55 % Zn	1 182 kg Au 73 008 kg Ag 13 238 t Cu 45 321 t Zn	Selbaie mine	11 700 000 t at 0,27 g/t Au 23 g/t Ag 0,35 % Cu 1,26 % Zn	229	44 829 682 t at 0,63 g/t Au 42,05 g/t Ag 1,01 % Cu 2,00 % Zn	1981-20.. (20)	Brouillan / 32E/15 / 10 / **Rouyn-Noranda**

Precious metals: Au and Ag

Site	Mine	Company	Summary description of the deposit	Ore process in 2000	Metal production in 2000	Ore processing in 2000	Reserves (at January 1st 2001)	Employees in 2000	Cumulative production	Number of years of production	Township / NTS / Administrative area/ Mining district
8	Beaufor	Mines Aurizon Ltée	Gold-bearing veins located inside of E-W shear zones at the margin of the Bourlamaque batholith.	134 489 t at 7,41 g/t Au	984 kg Au	Camflo plant	1 070 717 t at 7,51 g/t Au	110	759 364 t at 8,22 g/t Au	1996-20.. (5)	Pascalis / 32C/04 / 08 / **Val-d'Or**
9	Bousquet 2	Barrick Gold Corporation	Massive and semi-massive pyrite lenses in andalusite-bearing schists	883 500 t at 5,8 g/t Au 6,3 g/t Ag 0,33 % Cu	5 124 kg Au 5 566 kg Ag 2 882 t Cu	East Malartic plant	1 650 000 t at 6,0 g/t Au 6,2 g/t Ag 0,20 % Cu	296	6 495 100 t at 8,8 g/t Au 0,66 % Cu	1990-20.. (11)	Bousquet / 32D/08 / 08 / **Rouyn-Noranda**
10	Donald J. LaRonde	Agnico-Eagle Mines	Massive and semi-massive pyrite lenses in sericitized felsic volcanics and metamorphosed in andalusite and kynaite-bearing schists.	1 284 482 t 4,88 g/t Au 50,00 g/t Ag 0,304 % Cu 2,894 % Zn	5 765 kg Au 45 429 kg Ag 2 412 t Cu 27 151 t Zn	LaRonde Division, Preissac	27 333 305 t 3,20 g/t Au 81,13 g/t Ag 0,33 % Cu 4,87 % Zn	379	7 332 783 t 6,81 g/t Au 11,73 g/t Ag 0,47 % Cu	1988-20.. (13)	Bousquet / 32D/08 / 08 / **Rouyn-Noranda**
11	Doyon	Cambior	Veinlets and disseminated pyrite in sericite schists, in intermediate felsic volcanics and in Mooshla pluton.	1 247 672 t at 4,8 g/t Au 2,1 g/t Ag	5 798 kg Au 2 673 kg Ag	Doyon Mine	6 033 000 t at 5,6 g/t Au	465	23 473 108 t at 5,95 g/t Au	1980-20.. (21)	Bousquet / 32D/07 / 08 / **Rouyn-Noranda**
12	Francoeur	Mines Richmont	Carbonate, albite, quartz and sericite lenses associated with the Francoeur-Wasa shear zone.	118 304 t at 6,62 g/t Au	783 kg Au	Camflo plant	129 870 t at 7,48 g/t Au	62	1 544 619 t at 6,26 g/t Au	1988-20.. (13)	Beauchastel / 32D/03 / 08 / **Rouyn-Noranda**

Tableau I - Production of metallic substances in Québec (see figure I). (continued)

Precious metals : Au and Ag

Site	Mine	Company	Summary description of the deposit	Ore process in 2000	Metal production in 2000	Ore processing in 2000	Reserves (at January 1st 2001)	Employees in 2000	Cumulative production	Number of years of production	Township / NTS / Administrative area/ Mining district
13	Géant Dormant	Cambior et Mines Aurizon	Gold-bearing quartz and sulfides veins at contact between dacitic intrusions and lava flows	221 251 t at 11,14 g t Au 19,3 g t Ag	2 425 kg Au 2 690 kg Ag	Géant Dormant	340 100 t at 11,1 g t Au	176	1 731 588 t at 9,9 g t Au	1989-20.. (11)	Chaste / 32F 04 / 10 / **Val-d'Or**
14	Joe Mann	Meston Resources	Sulfides-bearing quartz veins in gabbro and sheared rhyolite.	125 193 t at 0,22 % Cu 7,17 g t Au 4,87 g t Ag	263,0 t Cu 821,3 kg Au 363,3 kg Ag	Moulin Ile Merrill de Ressources Meston	1 525 838 t at 11,0 g t Au 0,28 % Cu 4,59 g t Ag	241	4 289 221 t at 7,56 g t Au 0,23 % Cu	1956-1959 1974-1975 1987-20.. (17)	Rohault / 32G 08 / 10 / **Chibougamau**
15	Kiena	McWatters Mines	Auriferous breccia and quartz veins localized between two komatiite flows	725 474 at 3,90 g t Au	2 694 kg Au	Kiena mine	2 200 000 t at 4,0 g t Au	187	9 557 289 t at 4,94 g t Au	1981-20.. (20)	Dubuisson / 32C 04 / 08 / **Val-d'Or**
16	Mouska	Cambior	Quartz veins in the Mooshla diorite close to the northern sheared contact.	89 530 t at 16,75 g t Au 2,6 g t Ag	1 410 kg Au 213 kg Ag	Doyon mine	219 000 t at 17,3 g t Au	109	1 064 820 t at 10,62 g t Au 1,65 g t Ag	1991-20.. (10)	Bousquet / 32D 07 / 08 / **Rouyn-Noranda**
17	Sigma	McWatters Mines	Subhorizontal auriferous tourmaline-bearing quartz-pyrite veins in shear zones	88 778 t 4,34 g t Au	372 kg Au	Sigma mine	Na	120	25 111 014 t 5,47 g t	1938-20.. (63)	Bourlamaque / 32C 04 / 08 / **Val-d'Or**
18	Fosse-Sigma / Lamaque	McWatters Mines	Subhorizontal auriferous tourmaline-bearing quartz-pyrite veins in shear zones	673 944 t at 2,59 g t Au	1 693 kg Au	Sigma mine	Na	120	1 267 258 t at 2,85 g t	1998 - 20.. (3)	Bourlamaque / 32C 04 / 08 / **Val-d'Or**
19	Troilus	Inmet Mining Corporation	Au-Cu porphyry in diorite	5 135 193 t 0,104 % Cu 0,90 g t Au 0,94 g t Ag	4 791 t Cu 3 473 kg Au 4 394 kg Ag	Troilus mine	31 100 00 t 0,095 % Cu 1,0 g t Au 0,90 g t Ag	290	17 894 993 t 0,119 % Cu 1,21 g t Au	1997-20.. (4)	/ 32O 01 / 10 / **Chibougamau**

Table I - Iron, ilmenite and niobium productions in Québec (see figure I). (continued)

	Mine	Company	Summary description of the deposit	Total production in 2000	Total shipment in 2000	Shipment of iron pellets in 2000	Shipment of iron concentrate in 2000	Reserves (at January 1st 2001)	Cumulative production	Years of production	Township / NTS / Administrative area/ Mining district
20	Mt. Wright	Quebec Cartier Mining	Specular hematite in metamorphosed iron formation of the Gagnon Group	14,5 Mt	14,4 Mt	8,2 Mt	6,2 Mt	950 Mt ore at 32,3 % Fe	Na	1976-20.. (22)	Normanville / 23B/14, 23B/11 et 23B/09 / 09 / **Sept-Îles**
21	Lac Tio	QIT	Massive hemo-ilmenite in anorthosite associated with the Havre-Saint-Pierre intrusive suite.	Na	Na	Na	Na	Na	Na	1950-20.. (49)	Parker / 12L/09 et L/11 / 09 / **Sept-Îles**
22	Niobec	Les Services T.M.G.	Pyrochlore in the St-Honoré carbonatite	864 000 t at 0,71 % Nb_2O_5 3480 t Nb_2O_5	2352 t of niobium			10,2 Mt at 0,73 % Nb_2O_5	Na	1976-20.. (25)	Simard / 22D/11 / 05 / **Montréal-Estrie-Laurentides**

Abbreviation list

Au: Gold	BO: Biotite	PY: Pyrite	Zn: Zinc	Na: Non available
Ag: Silver	CP: Chalcopyrite	Nb: Niobium	VMS: Volcanogenic massive sulfides	t: metric ton
Cu: Copper	PO: Pyrrhotite	SP: Sphalerite	Ni: Nikel	

NOTE: The data compiled in this table are preliminary and have been collected from mining companies before they published their financial statements.

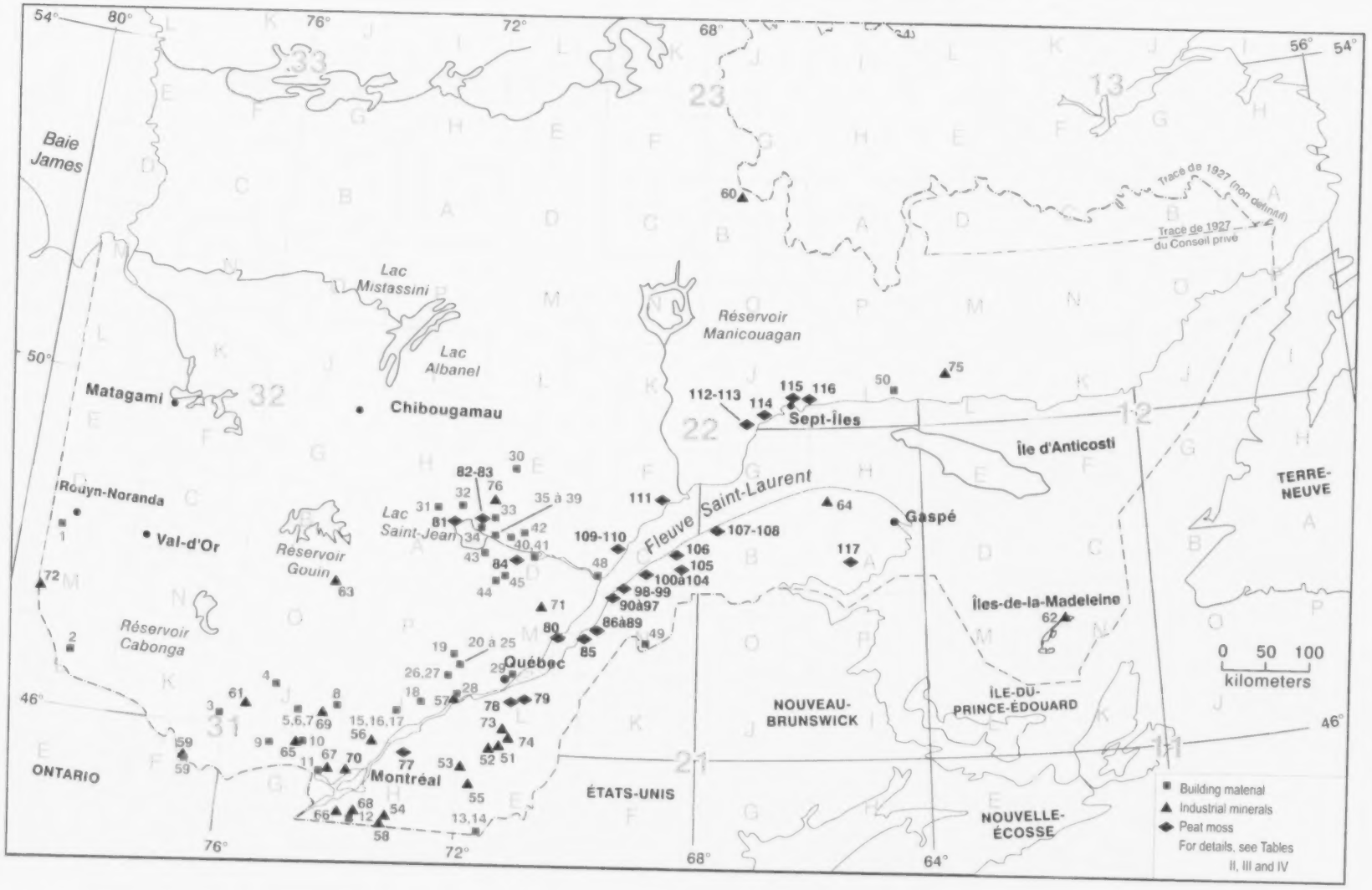


FIGURE II – Mining activities in Québec in 2000. Building material, industrial minerals and peat moss.

TABLE II – Architectural stone quarries exploited in Quebec in 2000 (see figure II).

SITE	LOCATION	COMPANY	ROCK TYPE / PRODUCTS*	COMMERCIAL NAME	TOWNSHIP / NTS / ADMINISTRATIVE REGION	TITLE
1	Beaudry	Les Pierres du Nord	Schiste à biotite du Groupe de Pontiac / 3	–	Montbeillard / 32D03 / 08	BEX 086
2	Témiscaming	Les Pierres du Nord	Quartzite à muscovite verte / 6	–	Campeau / 31L10 / 08	BNEP 454
3	Blue Sea	Carrière Tremblay et Fils	Marbre dolomitique à diopside / 6	–	Wright / 31K01 / 07	Aucun
4	Guénette	Rock of Ages du Canada	Monzogranite rose rougeâtre, à grain variant de fin àmoyen / 1, 2	Rose Laurentien	Campbell / 31J11/ 15	CM 079
5	Labelle	Les Pierres Mitchell	Paragneiss quartzofeldspathique / 3	–	Joly / 31J07 / 15	BEX 330
6	Labelle	Robert Durand	Paragneiss quartzofeldspathique / 3	–	Joly / 31J07 / 15	BEX 076
7	Labelle	Les Pierres Mitchell	Paragneiss quartzofeldspathique / 3	–	Marchand / 31J07 / 15	BEX 197
8	Saint-Donat-de-Montcalm	Carrières F.L.	Gneiss granitique, rose brunâtre, à grain fin / 3	–	Lussier / 31J08 / 14	BEX 140
9	Montpellier	Granite du Rat Musqué	Gabbro (diabase), à grain moyen / 2	Noir Montpellier	Lathbury / 31G14 / 07	BEX 265
10	Rockway Valley	347 1381 Canada	Marbre dolomitique / 6	–	Ponsonby/ 31G15/ 07	Aucun
11	Saint-Canut	Les Pierres Saint-Canut	Grès beige crème / 3	Grès de Saint-Canut	Seigneurie Lac-des-Deux-Montagnes 3 / 31G09 / 15	Aucun
12	Havelock	Les Carrières Ducharme	Grès gris et beige / 3	Grès d'Hemmingford	Havelock / 31H04 / 16	Aucun
13	Stanstead	Groupe Polycor	Granite gris, à grain moyen / 1, 2	Gris de Stanstead	Stanstead / 31H01 / 05	Aucun
14	Stanstead	Rock of Ages du Canada	Granite gris, à grain moyen / 1, 2	Gris de Stanstead	Stanstead / 31H01 / 05	Aucun
15	Saint-Alexis-des-Monts	Firstake Capital	Mangérite quartzifère, brune, à grain grossier / 3, 4	Brun Diamant	Hunterstown / 31I06 /04	BEX 174
16	Saint-Alexis-des-Monts	Groupe Polycor	Mangérite quartzifère, brune, à grain grossier / 1, 2, 3	Newton	Hunterstown / 31I06 / 04	Aucun
17	Saint-Didace	A. Lacroix et Fils	Mangérite quartzifère, porphyroïde, brun rougeâtre, à grain grossier / 1	Rouge Nordique	Hunter (Lanaudière) / 31I06 / 14	Aucun
18	Shawinigan	Les Entreprises Élie Grenier	Gneiss oeillé / 3	–	Shawinigan / 31I10 / 04	Aucun
19	Rivière-à-Pierre	A. Lacroix et Fils	Mangérite quartzifère, porphyroïde, gris noirâtre, à grain grossier / 1	Bleu Atlantique	Bois / 31P01 / 03	BEX 178
20	Rivière-à-Pierre	Granicor	Mangérite quartzifère et farsundite, porphyroïde, variant de gris brunâtre à gris orangé, à grain grossier / 1, 4	Nara Brown	Bois / 31P01 / 03	BEX 231
21	Rivière-à-Pierre	Granicor	Mangérite et jotunite quartzifère, porphyroïde, variant de gris à noir verdâtre, à grain grossier / 1	Vert Prairie, Dark Steel	Bois / 31P01 / 03	BEX 165

TABLE II – (cont'd)

SITE	LOCATION	COMPANY	ROCK TYPE / PRODUCTS*	COMMERCIAL NAME	TOWNSHIP / NTS / ADMINISTRATIVE REGION	TITLE
22	Rivière-à-Pierre	Granicor	Farsundite porphyroïde, variant de gris brunâtre à rosé, à grain grossier / 1	Newport, Abbey Rose	Bois / 31P01/03	Aucun
23	Rivière-à-Pierre	A. Lacroix et Fils	Farsundite porphyroïde, variant de gris brunâtre à verdâtre, à grain grossier / 1	Deer Brown, Vert Atlantique, Deer Brown D.D.	Bois / 31P01 / 03	BM 723 BM 746
24	Rivière-à-Pierre	Groupe Polycor	Farsundite porphyroïde, gris brunâtre, à grain grossier / 1, 4	Calédonia	Bois / 31P01 / 03	Aucun
25	Rivière-à-Pierre	Groupe Polycor	Farsundite porphyroïde, gris brunâtre, à grain grossier / 1, 4	Calédonia	Bois / 31P01 / 03	BEX 033
26	Rivière-à-Pierre	Groupe Polycor	Mangérite quartzifère, porphyroïde, gris verdâtre / 1	Vert Boréal	Chavigny / 31I16 / 03	BEX 333
27	Rousseau-Mills	Groupe Polycor	Farsundite porphyroïde, gris rosé, à grain fin à moyen / 1	Rose Cendré	Montauban/ 31I16/ 03	Aucun
28	Saint-Marc-des-Carrières	Groupe Cogeneuf	Calcaire gris / 1	Calcaire Saint-Marc	Seigneurie La Chevrotière / 31I09 / 03	Aucun
29	Château-Richer	Carrière Laplante	Calcaire gris brunâtre / 3	–	Seigneurie Côte-de-Beaupré / 21L14 / 03	Aucun
30	Saint-Ludger-de-Milot	Granite Péribonka	Monzogabbro gris brunâtre, à grain grossier, / 2	Brun Mystique	Pinsonnault / 22E06 / 02	BEX 299
31	Saint-Thomas-Didyme	Granicor	Farsundite porphyroïde, brun orangé, à grain grossier, / 1	Brun Acajou	Girard / 32A15 / 02	Aucun
32	Mistassini	Les Calcites du Nord	Marbre calcitique / 6	–	Pelletier / 32A16 / 02	Aucun
33	Chute-du-Diable	Granicor	Anorthosite noire, à grain grossier / 1 ,2	Noir Péribonka	Garnier / 22D13 / 02	Aucun
34	Saint-Henri-de-Taillon	Groupe Polycor	Anorthosite noire, à grain grossier / 1, 2	Noir Taillon	Taillon / 22D12 / 02	Aucun
35	Saint-Nazaire	Groupe Polycor	Leucogabbronorite à biotite, noire, à grain variant de moyen à grossier / 1, 2	Noir Cambrien	Taché / 22D12 / 02	BM 705
36	Saint-Nazaire	A. Lacroix et Fils	Leucogabbronorite à olivine, noir grisâtre, à grain grossier / 1	Noir Atlantique, Vert Forêt, Vert Nordique	Taché / 22D12 / 02	BEX 148
37	Saint-Nazaire	A. Lacroix et Fils	Leucogabbronorite à olivine, noir verdâtre, à grain grossier / 1, 2	Vert Nordique, Noir Atlantique	Taché / 22D12 / 02	Aucun
38	Saint-Nazaire	Granicor	Leucogabbronorite à biotite, noire, à grain variant de moyen à grossier / 1, 2	Noir Cambrien	Taché / 22D12 / 02	BEX 332

TABLE II – (cont'd)

SITE	LOCATION	COMPANY	ROCK TYPE / PRODUCTS*	COMMERCIAL NAME	TOWNSHIP / NTS / ADMINISTRATIVE REGION	TITLE
39	Saint-Nazaire	Investrock	Anorthosite porphyroclastique, chatoyant / 1	Mona Lisa	Taché / 22D12 / 02	Aucun
40	Bégin	A. Lacroix et Fils	Mangérite quartzifère, porphyroïde, rose grisâtre, à grain grossier / 1	Rose Atlantique	Bégin / 22D11 / 02	Aucun
41	Bégin	Granite Aurélien Tremblay	Mangérite quartzifère, porphyroïde, rose grisâtre, à grain grossier / 1	Rose Sauvage	Bégin / 22D11 / 02	Aucun
42	Saint-Honoré	Les Pierres Naturelles Tremblay	Calcilutite gris noirâtre / 3	–	Falardeau / 22D11 / 02	Aucun
43	Métabetchouan	Groupe Polycor	Farsundite porphyroïde, rose orangé, à grain grossier / 1	Betchouan	Caron / 22D05 / 02	Aucun
44	Mont-Apica	Groupe Polycor	Jotunite quartzifère, verte, à grain grossier / 1, 2	Vert Laurentide	Lac Saint-Jean-2 / 22D04 / 03	BEX 210
45	Parc des Laurentides	Granite Aurélien Tremblay	Mangérite quartzifère, porphyroïde, gris brunâtre, à grain grossier / 1	Harmonie d'automne	- / 22D03 / 03	BEX 225
46	La Baie	Groupe Polycor	Farsundite porphyroïde, brun orangé, à grain grossier / 1	Polychrome	Bagot / 22D07 / 02	Aucun
47	La Baie	Granicor	Farsundite porphyroïde, brun orangé, à grain grossier / 1	Polychrome	Bagot / 22D07 / 02	Aucun
48	Grandes-Bergeronnes	Granicor	Orthogneiss rose, à grain moyen / 1	Tadoussac	Bergeronnes / 22C04 / 09	Aucun
49	Saint-Marc-du-Lac-Long	Carrière Glendyne	Ardoise noire / 3, 5	La Canadienne, Glendyne Slate, North Country Black	Bostford / 21N07 / 01	Aucun
50	Magpie	Groupe Polycor	Syénite à hypersthène, variant de brun à rose brunâtre, à grain moyen / 1	Magpie	Fornel / 22I08 / 09	BEX 091
59	Portage-du-Fort	Dolomex	Marbre dolomitique / 6	–	Litchfield / 31F10 / 07	Aucun

* 1 – Pierre dimensionnelle ; 2- Monument funéraire ; 3- Pierre à bâtir, pavés ; 4- Bordure de trottoir ; 5- Tuile à toiture; 6- Granulat décoratif.

TABLE III – Industrial minerals quarries in production in Quebec in 2000 (see figure II).

SITE	QUARRY	COMPANY	SUMMARRY DESCRIPTION OF DEPOSIT	PRODUCTS	TOWNSHIP/NTS ADMINISTRATIVE REGION
			Amiante (chrysotile)		
51	Bell	LAB Chrysotile	Réseau de veines (stockwerk) dans des ultramafites serpentinisées	Fibres	Thetford / 21L03/ 12
52	Black Lake	LAB Chrysotile	Réseau de veines (stockwerk) dans des ultramafites serpentinisées	Fibres	Ireland / 21L03 / 12
53	Jeffrey	JM Asbestos	Réseau de veines (stockwerk) dans des ultramafites serpentinisées	Fibres	Shipton / 21E13 / 12
			Calcaire de haute pureté		
54	Bedford	Graybec Calc	Calcaire de la Formation de Corey	Chaux vive, produits de calcaire broyé pour usage industriel, pierre concassée	Stanbridge / 31H03 / 16
55	Domlin	Graybec Calc	Calcaire du Groupe du Lac Aylmer	Chaux vive, produits de calcaire broyé pour usage industriel, pierre concassée	Dudswell / 21E12 / 12
56	Jolichaux	Graybec Calc	Calcaire de la Formation de Deschambault	Chaux vive, produits de calcaire broyé pour usage industriel, pierre concassée	Lavaltrie / 31I03 / 14
57	Calco	Graymont Portneuf	Calcaire de la Formation de Deschambault	Pierre concassée, produits de calcaire broyé pour usage industriel	Seigneurie de Grondines / 31I09 / 03
58	Saint-Armand Ouest	Compléments industriels	Marbre de Strites Pond	Calcaire pulvérisé pour charges minérales	Seigneurie de Saint-Armand/ 31H03 / 16
			Dolomie et marbre dolomitique de haute pureté		
59	Portage-du-Fort	Dolomex	Marbre dolomitique pur	Agrégats blancs; produits granulés (agriculture, horticulture); poudres.	Litchfield / 31F10 / 07
			Fer		
60	Mont-Wright	La Compagnie minière Québec Cartier	Hématite (spéculaire) dans les formations de fer métamorphisées du Groupe de Gagnon	Concentré et boulettes de fer pour acier et métallurgie ; produits de sablage au jet	Normanville / 23B14 et 23B11 / 09
			Graphite		
61	Stratmin	Stratmin Graphite (division Lac-des-Îles)	Graphite en paillettes disséminées dans des calcaires cristallins (±quartzite)	Paillettes pour réfractaires, acier, moules de fonderie, lubrifiant, garniture de freins	Bouthillier / 31J05 / 15
			Halite		
62	Seleine	La Société canadienne de sel (division Mine Seleine)	Dôme de sel	Sel déglaçant	Îles-de-la-Madeleine / 11N12 / 11
			Micas		
63	Letondal	Les Produits Mica Suzorite	Intrusion alcaline lenticulaire contenant 80-85 % phlogopite (variété suzorite)	Mica broyé pour charges minérales (ciment à joint, plastique) et boues de forage	Suzor / 31O16 / 04
			Silice		
64	Canton Larivière	Béton Provincial	Grès de Kamouraska	Fondant siliceux	Larivière / 22H03 / 11

TABLE III - (cont'd)

SITE	QUARRY	COMPANY	SUMMARRY DESCRIPTION OF DEPOSIT	PRODUCTS	TOWNSHIP/NTS ADMINISTRATIVE REGION
65	Saint-Rémi d'Amherst	Société minière Gerdin	Quartzite	Agrégats pour briques, sable de silice pour cimenterie	Amherst / 31G15 / 15
66	Ormstown	La Cie Bon Sable (division Ormstown)	Sable naturel	Sable lavé pour sablage au jet, fonderie, mélange pour colle à céramique	Beauharnois-2 / 31H04 / 16
67	Saint-Canut	Unimin Canada (division Saint-Canut)	Grès de Postdam	Sable pour verre, sablage au jet, filtre, céramique	Lac-des-Deux-Montagnes- 3 / 31G09 / 15
68	Sainte-Clotilde	Les Sables Silco	Grès de Postdam	Pierre concassée riche en silice pour cimenterie et ferro-silicium	Beauharnois-1 / 31H04 / 16
69	Saint-Donat	Unimin Canada (division Saint-Donat)	Quartzite	Sable pour le carbure de silicium	Lussier / 31J08 / 14
70	Saint-Joseph-du-Lac	La Cie Bon Sable	Sable naturel	Sable lavé pour la maçonnerie et le sablage au jet	Lac-des-Deux-Montagnes-1 / 31H12 / 15
71	Petit lac Mabaie	Sitec inc.	Quartzite	Quartz en morceaux pour le silicium métal et sable de silice pour le carbure de silicium	Charlevoix / 21M15 / 03
72	Saint-Bruno-de-Guigues	Temisca Silice	Grès d'âge Ordovicien	Sables pour filtration fonderie, fracturation hydraulique	Guigues / 31M05 / 08
			Talc et stéatite		
73	Saint-Pierre-de-Broughton	Luzenac	Schiste à talc-carbonate	Produits de talc moulu, non purifiés	Leeds / 21L06 / 12
74	Fraser	Les Pierres Stéatite inc.	Stéatite	Blocs pour sculpture, plaques réfractaires	Broughton / 21L03 / 12
			Titane		
75	Lac Tio	QIT - Fer et Titane	Hémo-ilménite massive dans l'anorthosite du Complexe d'Havre-Saint-Pierre	Scories de titane (Sorel slag) pour la production de pigments et de fer de refonte, ilménite concassée (Sorel flux)	Parker / 12L09 et 12L11 / 09
			Wollastonite		
76	Saint-Onge	Ressources Orléans	Skarn à wollastonite - diopside	Concentrés de wollastonite	Saint-Onge 1/ 22 E04/02

TABLE IV - Peat bogs in exploitation in Quebec in 2000 (see figure II).

SITE	PEAT BOG (DEPOSIT)	COMPANY	PRODUCTS	TOWNSHIP/NTS ADMINISTRATIVE REGION
77	Saint-Bonaventure	Fafard et Frères (division Saint-Bonaventure)	Tourbe de sphaignes, terreaux, composts, biofiltres	Upton / 31H15 / 04
78	Saint-Henri-de-Lévis	Premier Horticulture (division Saint-Henri)	Tourbe de sphaignes	Seigneurie Lauzon / 21L11 / 12
79	Saint-Charles	Les tourbes M. L. (division Saint-Charles)	Tourbe de sphaignes Terreaux	Seigneurie Lauzon et fief de La Martinière (Beauchamp) / 21L10 / 12
80	Île aux Coudres	Tourbière Pearl	Tourbe de sphaignes	Seigneurie Isle aux Coudres / 21M08 / 03
81	Sainte-Marguerite	Fafard et Frères (division Sainte-Marguerite)	Blocs de tourbe de sphaignes	Racine / 32A16 / 02
82	L'Ascension Ouest	Tourbières Lambert (division L'Ascension)	Tourbe de sphaignes	Garnier / 22D13 / 02
83	Saint-Ludger-de-Milot SW	Fafard et Frères (division Milot)	Tourbe de sphaignes	Milot / 22D13 / 02
84	La Baie	Tourbières Blocs Dorés	Blocs de tourbe de sphaignes	Bagot / 22D7 / 02
85	Rivière Ouelle (division Rivière Ouelle)	Tourbières Lambert	Tourbe de sphaignes, terreaux, mousse florale	Seigneurie Rivière-Ouelle / 21N05 / 01
86	Saint-Alexandre	Tourbière Saint-André	Tourbe de sphaignes	Seigneuries Islets-du-Portage et Lachenaye / 21N12 / 01
87	Saint-Alexandre	Tourbière Saint-Alexandre	Tourbe de sphaignes	Seigneuries Islets-du-Portage et Lachenaye / 21N12 / 02
88	Saint-Alexandre	Tourbière Mouska	Tourbe de sphaignes	Seigneuries Islets-du-Portage et Lachenaye / 21N12 / 03
89	Notre-Dame-du-Portage	Premier Horticulture (division Tardif)	Tourbe de sphaignes	Seigneurie Terrebois / 21N12 / 01
90	Rivière-du-Loup	Premier Horticulture (division Premier)	Tourbe de sphaignes, terreaux, composts, endomycorrhyzes, biofiltres	Seigneuries Rivière-du-Loup et Cacouna / 21N13-14 / 01
91	Rivière-du-Loup	Premier Horticulture (division Verbois)	Tourbe de sphaignes	Seigneuries Rivière-du-Loup et Cacouna / 21N13-14 / 01
92	Rivière-du-Loup	Premier Horticulture (division Saint-Laurent)	Tourbe de sphaignes	Seigneuries Rivière-du-Loup et Cacouna / 21N13-14 / 01
93	Rivière-du-Loup	Tourbière Michaud ltée	Tourbe de sphaignes	Seigneuries Rivière-du-Loup et Cacouna / 21N13-14 / 01
94	Rivière-du-Loup	Les tourbes M. L. (division Rivière-du-Loup)	Tourbe de sphaignes	Seigneuries Rivière-du-Loup et Cacouna / 21N13-14 / 01
95	Rivière-du-Loup	Tourbière Berger inc.	Tourbe de sphaignes, terreaux	Seigneuries Rivière-du-Loup et Cacouna / 21N13-14 / 01
96	Rivière-du-Loup	Tourbière Henri Théberge et associés	Tourbe de sphaignes	Seigneuries Rivière-du-Loup et Cacouna / 21N13-14 / 01
97	Rivière-du-Loup	Tourbière Omer Bélanger	Tourbe de sphaignes	Seigneuries Rivière-du-Loup et Cacouna / 21N13-14 / 01
98	Isle-Verte, EST	Tourbière Réal Michaud et fils	Tourbe de sphaignes	Seigneurie Isle-Verte / 22C03 / 01
99	Isle-Verte, SW	Tourbière Ouellet et fils	Tourbe de sphaignes	Seigneurie de Villeray / 21N14 / 01
100	Saint-Eugène-de-Ladrière	La tourbière Yvon Bélanger	Tourbe de sphaignes	Seigneurie Nicolas Rioux 03 / 22C07 / 01
101	Saint-Fabien-sur-Mer	La tourbière Rio-Val	Tourbe de sphaignes	Seigneurie Nicolas Rioux 03 / 22C07 / 01
102	Saint-Fabien-sur-Mer	Tourbière de la Mer	Tourbe de sphaignes	Seigneurie Nicolas Rioux 03 / 22C07 / 01
103	Saint-Fabien	Tourbière du Port-Pic	Tourbe de sphaignes	Seigneurie Nicolas Rioux 03 / 22C07 / 01
104	Saint-Fabien	Tourbière Berger inc. (division Saint-Fabien)	Tourbe de sphaignes	Seigneurie Nicolas Rioux 03 / 22C07 / 01

TABLE IV - (cont'd)

SITE	PEAT BOG (DEPOSIT)	COMPANY	PRODUCTS	TOWNSHIP/NTS ADMINISTRATIVE REGION
105	Lac Malobès	Exportations Daniel Sage inc	Blocs de tourbe de sphaignes	Seigneurie Nicolas Rioux / 22C7 / 01
106	Pointe-au-Père	Premier Horticulture (division Pointe-au-Père)	Tourbe de sphaignes	Seigneurie Lessard / 22C09 / 01
107	Rivière-Blanche	Premier Horticulture (division Saint-Ulric)	Tourbe de sphaignes	Matane / 22B13 / 01
108	Saint-Ulric	Les tourbes M.L. (division Saint-Ulric)	Tourbe de sphaignes	Matane / 22B13 / 01
109	Les Escoumins	Tourbières Lambert (division Anse-aux-Basques)	Tourbe de sphaignes	Bergeronnes / 22C06 / 09
110	La Petite Romaine	Tourbières Lambert (division Saint-Paul-du-Nord)	Tourbe de sphaignes	Iberville / 22C06 / 09
111	Pointe-Lebel	Premier Horticulture (division Sogevex)	Tourbe de sphaignes	Manicouagan / 22F01 / 09
112	Port-Cartier Ouest	9006 - 1474 Québec inc. (Les Tourbières Torland)	Tourbe de sphaignes et blocs de tourbe de sphaignes	Babel / 22J02 / 09
113	Port-Cartier Ouest	Exportations Daniel Sage Inc.	Blocs de tourbe de sphaignes	Babel / 22J2 / 09
114	Port-Cartier Est	Tourbières Blocs Dorés	Blocs de tourbe de sphaignes	Leneuf / 22J02 / 09
115	Ville de Sept-Îles (division tourbières Sept-Îles)	Les tourbes M. L.	Tourbe de sphaignes	Letellier / 22I05 / 09
116	Rivière-Moisie	Premier Horticulture (division Sept-Iles)	Tourbe de sphaignes	Moisie / 22I5/ 09
117	Saint-Jogues	Shigawake Organics Ltd	Tourbe de sphaignes	Hope / 22A3 / 11